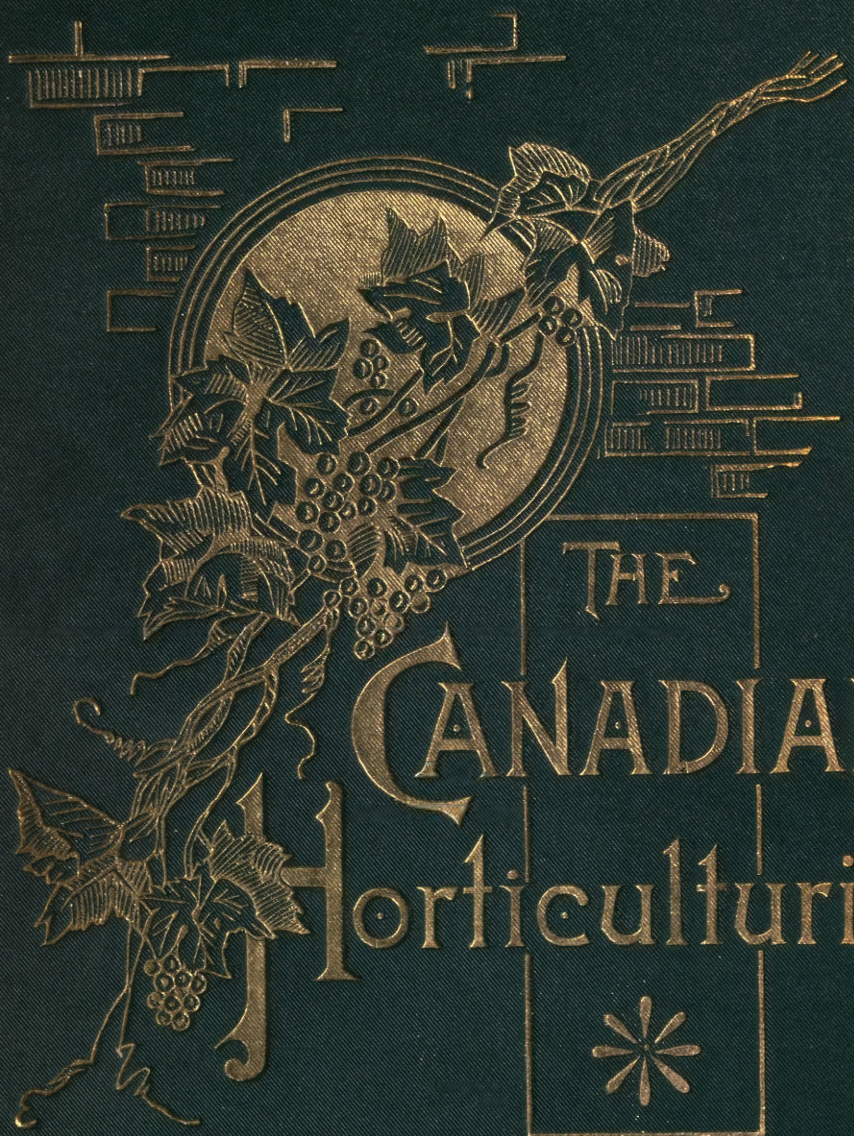

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PAEONIES AT THE CENTRAL EXPERIMENTAL FARM OTTAWA, ONT.

BY DR. WM. SAUNDERS, DIRECTOR.

THE paeony which is said to derive its name from Pæon a Greek Physician who first employed the plant medicinally, may be conveniently divided into two groups, the herbaceous paeony and the tree paeony. The herbaceous paeonies have tuberous roots something like those of the dahlia which send up stout flower stems every year, which at the close of the season die down. The new growth the following spring is made from strong buds or crowns which form on the tubers. These herbaceous species have been derived mainly from two wild forms, one a native of Switzerland *Paeonia officinalis* which is said to have been in cultivation for more than three centuries, the other a Siberian species *Paeonia albiflora*, which was first introduced in 1734. The shrubby forms of the paeony known also as the tree paeony have been derived from an Asiatic species known to botanists as *Paeonia moutan*. The tree paeony is much grown in Japan, China, and in the milder climates in Europe. In Eastern Canada it is more or less tender and unless well protected is liable to be killed to the ground during the winter, and even where protection is afforded during the severe weather, the tender shoots sometimes suffer injury from spring frosts. Where the tree paeony can be successfully grown it is a very desirable shrub; it blooms earlier than the herbaceous species and the individual flowers are wonderfully large and fine. About 20

FIG. 1485.—MADAME d'HOUR.

FIG. 1887.—DECAISNE.

FIG. 1486.—BERLIOZ.

FIG. 1488.—PAPAVERIFLORA.

varieties of the tree paeony have been tested at the Central Experimental Farm, but none of them have been found entirely hardy. When the snow comes early and covers the ground well during the winter they pass through this trying period without much injury, but in seasons where the snow covering is insufficient they are usually killed back nearly to the ground and not unfrequently killed outright.

FIG. 1489.—SOLFATERRE.

The herbaceous paeony, with which in this communication we are chiefly concerned is one of the hardiest and best known of all perennials, and owing largely to the recent introduction of many new and beautiful varieties its popularity is steadily increasing. It is hardy not only in the eastern provinces of Canada but also in the north-west portions where the winter climate is much more severe. At the branch experimental farms at Brandon, in Manitoba, and at Indian Head, in Eastern Assiniboia, a number of varieties have been tested during the past five or six years and most of them have proven quite hardy and have borne flowers very freely for the past two years. The paeony succeeds well under almost every condition, and will thrive even in the gardens of the negligent and careless, but when well cared for it responds to good treatment by producing a wealth of magnificent flowers of a most attractive character.

The tubers as supplied by the dealers especially of the newer sorts, are comparatively small, and do not usually flower the first year, but they grow rapidly and if left undisturbed for three or four years they form extensive clumps which produce flowers in great number and of large size. The plant is propagated by division of the roots, but where fine flowers are desired the parent plants should be disturbed as little as possible. The flowers are very varied in color as-

FIG. 1490.—SOME-GANOKO.

suming every hue and shade from the deepest crimson, through all tints of red and pink to pure white.

Of the herbaceous paeonies, there are now in the collection at Ottawa 141 named varieties, consisting mainly of those sorts which have been produced within the past thirty or forty years by florists in Europe. Most of these were planted in 1895, with a more recent addition of about thirty varieties from Japan. They are arranged in three large beds each containing three rows of plants put out three feet apart each way, and are planted so as to have the plants in the second row alternate, and those in the third row opposite those in the first row. A part of one of these beds is shown in the frontispiece in bloom. The mass of flowers produced under these circumstances, when the plants are well established is very effective, and the beds are much admired when at their best in the latter part of June and early in July.

With so many beautiful varieties to choose from selection becomes somewhat difficult. I shall, however, venture to name a few which appear to be among the most desirable of those which have yet been tested at the Experimental Farm.

In Figure 1485 we have a single flower of a variety known as *Madame d'Hour*. This was planted in 1895, bloomed well in 1897, and magnificently in 1898 and is certainly one of the best in the collection. The flowers are very large and double, the petals nearly white with a delicate rosy tint becoming deeper in color towards the base. The specimen from which the illustration was taken measured seven inches across and the blooms were produced in great profusion.

Berlioz, shown in Figure 1486 is another good sort. The flowers are large

to very large, very double, of a deep rose-color with paler shadings on the margins ofthe petals. This also was planted in 1895, made strong growth, bloomed freely in 1897, and very freely in 1898.

Ambrosie verschaffelt is a charming flower of medium size, a deep crimson-color and is very full and double andwell formed, it also bloomed well.

Decaisne (Fig. 1487) —This is a strong grower and free-bloomer. The flowers are large, full and double, of a blush-pink color, paler in the centre. In addition to its other attractions this variety exhales a pleasant rosy odor.

FIG. 1491.—TATSU-GASHIRA.

Purpurea superba produces flowers which deserve to rank with the best. This variety is a strong grower and very free bloomer. The flowers are of a deep rose-color finely formed and very attractive.

Papaveriflora (Fig. 1488) is an elegant flower of good form and very double. Its color is white with a faint yellowish tint. The outer petals are wide while those forming the inner part of the flower are much narrower, making a very handsome combination.

Solfaterre (Fig. 1489) is not very double, but is very loose and graceful in form, the outer petals are wide and of a pale rose-color, while the centre is made up of much narrower petals which are almost pure white. This is a very free bloomer and is one of the sweet-scented sorts.

The Japanese varieties were planted in 1897 and 1898, and all those which have bloomed have shown much grace and delicacy of form with striking combinations of color. Most of them have only one or two rows of outside petals which are wide and the centre is filled with a cluster or rosette of very narrow petals, delicate in form and hue, usually tinted with shades of yellow margined with pink. The Japanese appear to prefer these chaste and loose semi-

double forms to the larger, stiffer and more fully double sorts; some of their flowers are of great beauty of form with wonderful delicacy in their tints.

Some-ganoko (Fig. 1490) is a good representative variety of this class. The flower is of medium size, the outer petals of a deep blush rose with paler markings, the centre being filled with a lovely rosette of very narrow yellow petals neatly arranged, each with a thread-like base and tinted above with pink.

Kame-no-Kegoromo is a large handsome, loosely double flower of a deep carmine-red color with a number of narrow petals distributed about the base of the wider petals, the former being crimped and twisted, yellow in color, margined with red.

Tatsu-gashira (Fig. 1491) is also a very beautiful flower. In this variety there is a single row of wide petals nearly white, with the centre partly filled with a loose cluster of very narrow yellowish petals tinted with rose.

Paeonia tenuifolia which is shown in the front of the bed seen in frontispiece, is very striking on account of its finely cut foliage. It is a distinct species from the other sorts referred to of which there are two varieties in common cultivation, one of which is single, the other double and both of a deep crimson-red color. This is a native of Siberia, is very hardy and is the earliest variety to bloom.

THE ST. CATHARINES MEETING.

FIG. 1492.—MAYOR GILLELAND.

SELDOM has the Ontario Fruit Growers' Association received a warmer welcome than that extended to it by the Garden City, on the 1st and 2nd of December last, and put in the form of a welcome address by Mayor Gilleland at the evening session. It is some satisfaction, after a year of hard work on the part of the officers of our Association to find that their labors have been appreciated, and that the literature on fruit gowing they have been able to send out has been helpful to their patrons.

St. Catharines is beautifully situated on that highly favored belt of land lying below "The Mountain," a glimpse of which is seen in our engraving looking down from the cut near DeCew Falls; whence the pipe line of the Cataract Power Company descends to the power house below. This gigantic enterprise undertaken by a Hamilton Syndicate is about completed, and will be of great value to the manufacturing interests of that city. The Welland Canal is another important feature of this vicinity, not only giving beauty to the landscape, but what is more important, low freight

FIG. 1493.—CUT NEAR DECEW FALLS.

rates for fruit and grain to the great markets.

Geneva Street is one of the principal suburban streets, well shaded with beautiful elm trees, planted nearly a century ago by Dr. D. W. Beadle, father of our former secretary. The view in Fig. 1495 shows the portion of the street between the Beadle estate and Mr. A. M. Smith's residence. Among the pretty houses in the outskirts we may mention that of Mr. W. W. Wanless, of Niagara St.,

FIG. 1494.—W. W. WANLESS' RESIDENCE.

with about 16 acres in fruit, the lawns and gardens about the house are tastefully laid out, and well deserve the name given it of "Fruitfield."

Our Association met in this old town on Thursday morning, Dec. 1st, at 10 o'clock, and under the management of Mr. W. E Wellington as President, proceeded at once with the business of the day.

FRAUDS IN FRUITS

was the subject of a paper by Mr. A. M. Smith, who contended that there were exhibitors at many of the fairs who were guilty of collecting good samples of fruit from their neighbors or elsewhere and displaying them as their own production. Those who were in the habit of practising this deceit were apparently unaware that they were guilty of fraud, and of obtaining the prize money under false pretenses. An especially regrettable feature of this species of dishonesty was that it was occasionally winked at by the judges, who were aware of the fraud. The speaker thought that some means should be taken to stamp it out. In the discussion which followed, the practice which Mr. Smith had so strongly inveighed against was roundly denounced. Strong measures were advocated to put down the custom, altogether too prevalent of exhibiting purchased or borrowed fruit. Mr. Pettit said he believed in having a special class made of such exhibits and putting them in as educational, not competitive showings. If such exhibits were correctly named it would be an education to the people of the country along the lines of our resources.

FIG. 1495.—GENEVA STREET, ST. CATHARINES.

FIG 1496.—MR. A. M. SMITH

The President said that at the Industrial there were open classes for Societies, and the restrictions were for individual exhibits only Mr. McNeill wished it were possible to return to those classic days when exhibits were made for honor, and not for mere money gain. Mr. Caston said he had seen at the Industrial some of those professional exhibitors who buy up fruit for exhibition at smaller fairs for the purpose of sweeping off the prize money. The opinion seemed to prevail that it was best to remove all restrictions at provincial, or international fairs, but to strictly enforce them at local fairs.

THE RINGING OF GRAPES

for exhibitions was also discussed, because some judges were said to throw out a plate of grapes from competition that showed evidence of having been produced by ringing. Mr. Whyte claimed that such grapes were inferior in quality, though of enlarged size, and the Judge would simply need to consider all these points in giving his award. Mr. Huggard claimed that exhibitors should be allowed to fertilize, thin, ring, or treat their fruit in any way they may choose, in order to produce fine samples for exhibitions. Mr. A. H. Pettit thought that if ringed grapes were to be thrown out, the Judges should be compelled to ticket them with the reason, else the public would be puzzled over the awards.

Prof. Macoun, of Ottawa, read a paper on "Russian Fruits." This gentleman is a son of Prof. Macoun, the Dominion Botanist, and has been for some time Assistant to Dr. Saunders at the Central Experimental Farm. On the resignation of Prof. Craig, he was appointed Horticulturist. He invited suggestions from the Ontario fruit men as to the various lines of work by which he could assist their industry. He had found the Russian Morello cherries to have especial value for the Northern districts, and at Ottawa they were much sought after in the local market. He especially commended the Koslov Morello, which was imported by the Ontario Fruit Growers' Association in 1889, and of which a couple of dozen trees had been forwarded to the Central Experimental Farm by the Secretary for test. Mr. Woolverton said he had a few trees of this lot of cherries now in bearing in his orchard. They had been sent him by Mr. Jaroslav Niemetz, of Winnitza Podolie, Russia, who commended them very highly, because they bear early, and are quite productive. They are rather to be called bushes than trees, for at fifteen years of age Mr. Niemetz stated they only reached three feet in height. Those at Maplehurst now eight years planted, are still bushes, but the fruit is good, much like English Morello, but later; and being bushes, they may be planted in rows like raspberry bushes.

EXPORTING TENDER FRUIT.

Prof. Robertson delivered a capital address on "Prospects for export of tender fruits." He spoke of the experiments in sending various fruits to the British market by cold storage under the best conditions which could be obtained. The result of these experiments had been in some cases favorable, and in others not so favorable. The prospect of a profitable business in export of Canadian pears, was he said, extremely good. We had here the conditions for producing abundantly this class of fruit, which the British public wanted and were willing to pay for. As far as plums were concerned, he said that while in some seasons they would bring high prices the home crop would generally be sufficient to meet the demand. A profitable trade in exporting Early Crawford peaches to the British market could not be expected. This fruit was so tender and had to be picked so exactly right that the prospect was anything but good. Some other varieties might succeed The case of tomatoes was still doubtful. The Canary Islands were at present sending such an abundant supply that they would stand in the way. No large export of grapes could be looked for especially of such varieties as Concord or Niagara. In the case of the more tender sorts of apples, such as Astrachan, Duchess or Alexander, a large trade could be developed only by shipping in cold storage. As far as currants and raspberries were concerned, he thought they should only be sent in pulp and, if there was a large crop in England, even this would

FIG. 1497.—RESIDENCE OF CHAS. RIORDAN, GENEVA ST.

FIG. 1498.—LOCK 2, OLD WELLAND CANAL.

be useless. In speaking on the subject of trans-atlantic transportation of fruit, Professor Robertson said that the early ripening apples should be cooled to below 50 degrees as soon as they were taken off the trees, and then before being packed they should be cooled below 40. This would ensure their arrival in England in good condition if the carriage was right. There was no possibility of carrying the tender apple except by cold storage. He urged very strongly the necessity of grading and packing apples intended for export. Fruit growers should be aroused to the importance of not allowing the commission men to buy their apples unless they graded them, as on this their market largely depended.

A GOOD YEAR'S WORK.

The evening session was enlivened by several pleasant features. Mayor Gilleland gave a cordial address of welcome, which was responded to by President Wellington, and during the evening Miss Daisy Torrey, B.E., of Gravenhurst, a graduate of Philadelphia College of Oratory, gave several recitations. Miss Torrey is an elocutionist of rare ability, and her renditions were received with great applause.

In his annual address, President W. E. Wellington congratulated the members on a successful year's work and on the excellence to which the monthly journal had attained. Last year, he said the members' fees had netted $3,375, and this year they had risen to $4,147. Last year they had 3,315 members, and this year 4,151, who had paid their fees, and 375 who had not. The total receipts this year had been $6,585, which left a balance on hand of $784. He suggested that the size of the journal should be increased by one-third. After dwelling on the practical work of the Association, the President spoke of the reception by Hon. Sidney Fisher of the deputation which had gone to Ottawa to interview him regarding the San Jose scale. By his courteous and prompt action in responding to the wishes of the deputa-

tion, he showed himself to have at heart the true interests of the farmers. The Provincial Government, too, had ably seconded his efforts in this matter. He referred in a congratulatory manner to the fruit experimental work and to the establishment of an experimental station on St. Joseph Island. The encouragement received in the matter of exportation to Great Britain was also mentioned with gratification.

MICHIGAN FRUIT GROWERS.

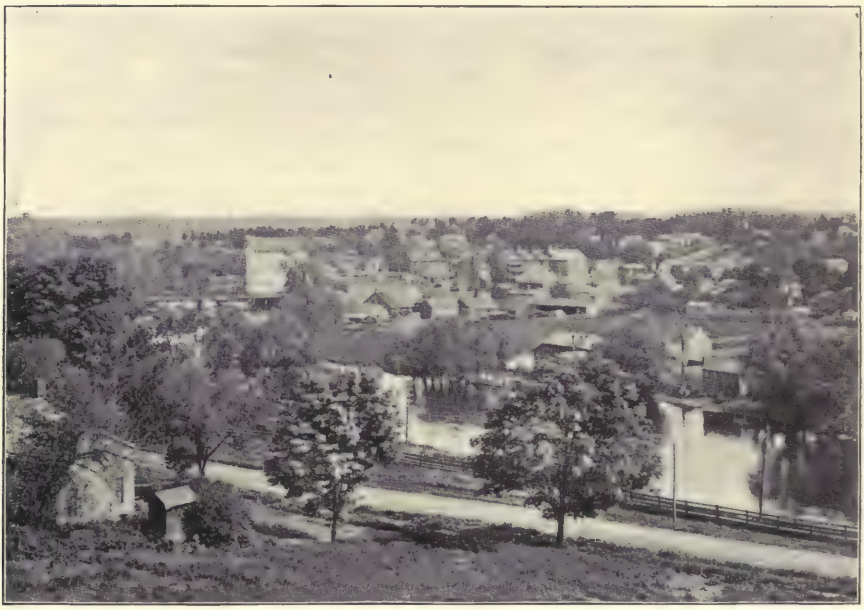

FIG. 1499.—LOWER TOWN, (ANN ARBOR) BOULEVARD AND HURON RIVER.

AS a delegate from Ontario to the Michigan State Society meeting at Ann Arbor, we reached that town on Tuesdayafternoon, Dec. 6th. It was a pleasure to meet such men as President R. Morrill, of Benton Harbor; C. W. Garfield, of Grand Rapids; Thos. Gunson, of the Michigan Agricultural College; C. J. Monroe, of South Haven; L. B. Rice, of Port Huron and others, who are in the front ranks of Michigan Horticulture.

The meetings were held in the University buildings, some of them in the Museum, because it was provided with apparatus for showing views and thus illustrating the lectures. (See Fig. 1501.)

One of these illustrated lectures was given by Prof. F. G. Newcombe, of the University, on "What are Fruits," who kindly agreed to write it out in an abridged form for use in this Journal, and to send us photographs for engraving. He is an enthusiast in botany, and knows how to make his subject interesting.

Mr. R. J. Coryell, Supt. of Parks,

FIG. 1500.—PRESIDENT JAMES B. ANGELL.

Detroit, also promised a copy of his address on "Object Lessons in City Parks," so we omit our notes on these valuable papers.

ARE WINTER PEARS PROFITABLE

was a question which was answered doubtfully. Mr. Kellogg included Kieffer in his list for profit. In December last year he was offered 50c. a bushel for them, but he held till January, when they yellowed up beautifully and brought $2 a bushel. Even its quality seems to improve, if properly ripened, while for canning it is as good as Bartlett.

Mr. James B. Angell, President of Michigan University, gave an interesting address on Turkey, having himself resided there three years, as U. S. minister.

That country is fossilized—it has not changed for 500 years, and is a long way behind us in horticulture, as well as every other interest. Their apples, peaches, plums and pears are far inferior, their cherries and apricots are good, and the only fruit in which they excel, and which they export in any quantity are figs. But their methods of cultivation are of the most primitive character. Their plow merely scratches the surface of the ground. There is no local mail in Constantinople, and no public roads in the country, so that all products have to be transported on the backs of animals. Is it then any wonder that there is no encouragement to commercial horticulture.

THINNING FRUITS

was treated by Prof. S. A. Beach, of Geneva. We must use every method he said to secure high grade fruit. Thinning was long practiced by the gardeners of the nobility in England, but only recently is being adopted in American commercial orchards as a profitable investment.

He had experimented with three varieties of apples, and found in each case an improvement in size and color. The Greening had actually given him a greater quantity of fruit than where it had not been thinned, the Baldwin and the Hubbardston gave 10 or 16 per cent. more of 1st class fruit, but the unthinned gave the greatest quantity, all grades being counted. He had thinned the apples to four inches apart.

More decided results were obtained in the case of peaches, which he had thinned from four to six inches apart. The thinned fruit weighed nine to the pound, and the unthinned, twelve; and the trees themselves were less subject to disease, hence the benefit was not merely annual. In years of abundance, thinning peaches would certainly pay, even at a cost of from 5 to 10 cents per tree.

President Morrill had practised thinning peaches on a large scale. He had about 100 acres in peaches at Benton

FIG. 1501.—THE MUSEUM.

Harbor, and spent hundreds of dollars on thinning. It cost him from 2½ cents to 10 cents per tree, but he could not afford to neglect it in seasons of abundance. His rule was to thin to 6 or even 8 inches apart.

Hon. C. J. Monroe, of South Huron, advocated legislation to prevent the shipment or sale of

SCABBY OR INSECT INFESTED FRUIT.

He reviewed the condition of fruit growing the last few years, and pointed out the condition of our markets glutted not with good, but with second class fruit. A resolution was the only hope, by which the scabby and infested fruit should never be allowed in our markets.

California growers are alive to this, and are asking legislation providing for fruit quarantine, and the confiscation of all wormy fruit, or scabby fruit found on the markets, or at the shipping points.

We cannot compel every man to spray his orchard for scab; nor to bandage his trees for codling moth, but we can make it a misdemeanor to offer such wretched stock for sale, and this will most effectually check its production.

The California Horticultural Act provides even for the disinfecting of all fruit boxes that have been once used, before using them a second time. It also provides that all wormy, fallen fruits in the orchards be gathered and destroyed at least once a week.

The result of such a law would be either that a large proportion of the fruit now produced would remain unmarketed, except to the canner or the evaporator, or else the production of a higher grade of fruit that would do credit to the producer and to his country.

It is the interest of the ruit grower himself we are consulting. As it now is a careful grower who grades high, sprays thoroughly, and packs conscien

tiously must compete against the careless man who gluts the market with poor stock. United action is needed to destroy the market for all such stuff, and then the lazy and indifferent grower will be compelled to cease shipping it.

Mr. Monroe quoted largely from reports of other countries in support of his position. The Jamaica Agricultural Journal says that her exports are chiefly to the United States, and they are asking for steamers specially fitted up to carry their fruits, and for inspection of their fruit at point of shipment.

In Tasmania orchardists are fined if they fail to bandage their trees for codling moth, or if they neglect to destroy the fallen infested fruit.

New South Wales has adopted a rigid inspection of all imported fruit packages. Thousands of packages are unloaded from the steamers, but cannot be offered for sale until inspected. The inspectors often begin work at 6 o'clock a.m., each accompanied by a man to open and close packages, and which is done with astonishing rapidity. Condemned cases receive a certain mark, and cannot be offered for sale.

At first great numbers of cases were condemned, but after a time, the shippers learned wisdom, and now only an occasional lot has to be condemned.

Mr. Munroe proposes that a law be passed in Michigan embracing among other points the explicit prohibition of the sale of wormy, scabby or infested fruit, the destruction of fallen wormy fruit, that shippers guilty of breaking the law be liable not only to confiscation of the fruit, but to a fine equal to double the value of the fruit, and that every package offered for sale bear the shipper's name.

THE PEACH OUTLOOK

was treated by Hon. R. D. Graham, a wholesale peach grower. He says he is encouraged. He finds that by growing a good fruit in sufficient quantity, he can attract the buyers to his own locality. The peach is as sure a crop as any other, and in our late peaches we have practically no competitor.

Engleman, Gold Drop, Kalamazoo were recommended as good shippers, but Mr. Morrill, of Benton Harbor, said the Elberta was the best of all. He had shipped that variety to New York City in bushel baskets, in a refrigerator car, and it had arrived in perfect condition, although it was held four days before being sold. He had kept Elbertas in cold storage for twenty-four days, and taken them out in prime condition. Elbertas shipped up from the South had been put on our Northern markets in better condition than our own peaches of other varieties.

THE FUTURE OF APPLE GROWING

was introduced by Mr. Morrill, who pointed out that we had reached a new era when apple growing under the old methods was a failure, but the up-to-date grower who could produce perfect samples of the finest varieties would make money out of them. We live in the best apple region of North America, and near to the best markets. Chicago is one of the best apple markets in the world.

SPRAYING OF PEACH TREES FOR THE PROTECTION OF THE BUDS AND FOR CURLED LEAF.

FIG. 1502.—Showing difference in time of blossoming of whitened and unwhitened buds. (After Whitten).

PROBABLY no other fruit grown in Ontario so often disappoints the well grounded expectations of the orchardist, as does the peach. The location may be favorable and the soil well adapted and perfectly drained; the wood may be well ripened and go into winter with abundant promise of a bountiful crop for the next season; but when the enterprising grower, endeavoring to ascertain the prospects for a crop, goes to the trees in January, February or March he often finds, on cutting open the buds, that the heart is black and dead. Not infrequently all the buds are affected in this way and the crop is a total failure. Sometimes there is vitality enough in the buds to blossom but not to set the fruit, thus cruelly disappointing the hopeful grower. This is due to the freezing of the buds after they have been stimulated into growth by a few bright warm days. Every peach grower knows that when in good condition peach buds will stand a temperature considerably below zero; while buds which have been exposed to warm weather will be killed by a much higher temperature. Many experiments have been made to overcome this difficulty but have been abandoned as ineffectual or too expensive for commercial orchards. Mulching the ground under the trees, after it was frozen, so as to keep the roots dormant was tried and abandoned, when it was known that the buds would swell and even grow under certain conditions, while the roots were frozen and dormant.

The building of sheds, baling and laying down of the trees were all successful but of no use to the grower from a commercial point of view.

The temperature seldom rises high enough in the shade, during the winter, to stimulate the growth of the buds. The problem thus was, how effectively and cheaply could the buds be protected from the direct rays of the sun.

With this problem yet unsolved, we heard that a series of experiments were being conducted at the Agricultural Experimental Station at Columbia, Missouri, in which the trees were whitened with a lime wash.

The theory was that whitening the trees would prevent them absorbing heat on bright sunny days and that they would remain dormant during the winter and blossom later, thus also being less exposed to frosts in the early spring.

A test was made to ascertain the amount of heat absorbed by different colored objects of the same texture.

It was found that on dull days, or when shaded, no difference existed, but when exposed to the sunlight a marked difference appeared. Frequently a difference of 10 deg. or 15 deg. was indicated, and when the sun was very bright

there was 21 deg. difference between the white and purple thermometers.

The theory looked all right, and we decided to put it to the test. We selected 100 young and vigorous trees of the following varieties: Stephens Rareripe, Wheatland, Smock, Centennial, Early Rivers and two seedlings, and gave them a good whitening, going over them twice, late in December, again in February and a third time in March. The material used was fresh stone lime slacked with hot water and used as thick as it would work through a Bordeaux nozzle. One fifth milk was added to each barrel to make it adhere to the tree. The trees were completely coated and some of the wash remained on them all summer.

FIG. 1503.—Sections of unwhitened (a) and whitened (b) buds of Heath Cling Peach, taken March 20th, 1896, showing that the unwhitened bud had swollen and grown considerably and had an imperfect pistil, while the whitened bud was nearly dormant, and had a perfect pistil—Whiten, Mo. Exp. Station, Bull. 38.

The trees thus treated were later in blooming than those untreated; but it was impossible to judge of the benefit as all the trees came through in splendid condition and we had a fair crop considering the very heavy crop of the previous year. However, we shall try again this winter, and our programme is as follows:—In the latter part of December we will spray with the following solution: 40 gallons of water and skim milk or butter-milk, about one-fifth being milk if possible, copper sulphate 4 lbs., salt 5 lbs., and enough lime to bring the whole to as thick a mixture as will work readily in the pump. As soon as this is dry we will follow with the same mixture only omitting the copper sulphate. We will spray also, early in February and early in March, using the solution without the copper sulphate. We expect this will be all that is required, but should the coat of whitewash at any time become thin we would make an application at once.

There was a considerable amount of curl leaf on the trees in 1897 and for fear of a recurrence of the disease in 1898 we decided to treat them with Bordeaux mixture.

In April we sprayed the whole orchard excepting one side of each of three rows, and gave a second application in May. The mixture used in both cases was of standard strength and each barrel was tested with the ferrocyanide of potash test.

The application made in April while the trees were dormant caused no injury, but in May, after growth had srarted, it injured the twigs badly on the narrow leaved varieties, the Longhursts dropping almost all their foliage and fruit. The fallen foliage appeared perfect, the trouble being apparently with the twigs, which afterward shrivelled and died. No damage was done to broad leaved varieties.

Otherwise than the damage referred

to the work was satisfactory, as the orchard was only very slightly affected, while the sides of the three rows which were not sprayed were badly diseased.

On the trees which were whitened throughout the winter in addition to the Bordeaux sprayings, scarcely a curled leaf could be found. The orchard was visited by a number of prominent fruit growers from Grimsby, Winona and other points who expressed themselves as pleased with the results.

To avoid a repetition of the damage to the foliage this year we will use only 2 lbs. of copper sulphate to 40 gallons of water when we spray in April and May.

W. M. ORR.

Fruitland.

PEACH GROWING.

SOME nine thousand acres of land in western New York are devoted to the peach industry, and, in accordance with the new law of that state, Professor Bailey has been making reports to the Commissioner of Agriculture on the condition of that industry. The facts in the case, and the counsel based upon them, seem so important that we give our readers a digest of parts of this report. Professor Bailey thinks that the peach industry, more than any other pomological interest, suffers peculiarly from careless methods. The first error is lack of cultivation; the second, inattention to borers and yellows; the third is neglect to thin the fruit, and the fourth is carelessness in marketing.

Location and Soils.—Many orchards are planted on land which is unsuited to them, such as heavy clay soils, or low lands with imperfect drainage of water and of air. The ideal peach soil is deep sand, upon which trees make a hard growth. The wood matures early, the trees bear well and the fruit has high color and flavor. It is such soils and exposures which have made the Peach region in Delaware, New Jersey, the eastern shore of Lake Michigan and some parts of the south famous. Peaches may be made to grow on heavy land, but the trees must be severely headed in. The gravelly soils about the New York lakes are well adapted to the peach, but in the interior part of that state, away from the lakes, peaches only thrive on elevated lands which are naturally drained and escape the late spring frosts, so often disastrous to the peaches on lower places.

Cultivating and Fertilizing.—Peach orchards should never be cropped after the third year, and on sandy lands especially, if the trees stand less than twenty feet apart, they should never be cropped from the time they are set. Frequent stirring of the surface-soil from May until August is desirable, and thereafter, perhaps, a green crop should be raised to be plowed under next spring. The orchard should, under no circumstances, be sowed to grain or seeded down, but it is easy on strong land to produce an overgrowth. Trees grow quickly to a great size, they bear poorly, and in some cases are never productive of much fruit; they run to wood, and the wind tears them to pieces. In addition to land which is too strong, too free a use of barnyard manure or other nitrogenous fertilizers is often made, and cultivation is continued too late in autumn. Potash and

phosphoric acid, and not nitrogen, are the true fertilizers for peaches. Ashes, muriate of potash and bone fertilizers make productive trees. Tillage with green crops, to turn under at the end of the season, will furnish sufficient nitrogen generally, and even then it is possible to plow under too much crimson clover. Nitrogen, it is true, lies at the foundation of successful agriculture, but its greatest benefits are to be had from annual crops in the farm and garden. It can also be applied advantageously to newly set fruit-plants, but it can be easily used to excess.

Pruning.—The difference of opinion as to the proper methods of pruning turn on three practices: (1) short trunks with rapidly ascending branches; (2) high trunks with more horizontal branches; and (3) shortening in or heading back the annual growth. Each of these methods has distinct advantages for different cases. The nature of the soil is the controlling factor in deciding which is preferable. The natural method of pruning trees on a sandy soil is to allow the tree to spread at will into a vase form, with no heading in—that is, to let the trees have short trunks and forking branches. The low trunk allows an open top, where the peaches color better. High-topped trees are more easily tilled, and it is quite as easy to pick their fruit. It is the better method on rich land, for it keeps the tree within bounds. Heading in is usually done in winter, and one-third to a half of the annual growth is removed. This heading in always makes a thick-topped tree.

Thinning Fruit.—No two peaches should be allowed to develop nearer than five inches apart. No work of the orchard pays better than thinning the fruit either in the price which the remaining produce brings or in the energy which is saved to the tree. When regularly thinned the tree bears every year unless injured by frost. The fruit must be picked sooner or later, and the work is more easily done in June than September, so that no labor is lost. The thinning should be delayed until the fruit is the size of the end of a man's thumb, and by this time the "June drop" has occurred, and the fruit can readily be seen.

Marketing.—But if growers are negligent in thinning, they are positively careless in marketing, and everybody knows that nicely packed fruit brings good prices wholly independent of its quality. Hand boxes containing sixty wrapped California peaches have sold from $2 to $4, although of inferior quality when they reached our market, and alongside of them our own peaches, of better flavor, have sold for twenty-five cents to seventy-five cents when carelessly dumped into a half-bushel basket. The main fault in handling peaches are too large packages, lack of grading and selection, lack of covers to the basket, which allows the fruit to be crushed, when it will have a disagreeable and forbidding look, and cannot command a fair price.—Garden and Forest.

EXPERT QUINCE CULTURE.

FIG. 1504.—THE FULLER QUINCE.

THE bulk of the crop of quinces that have been sent to market this winter shows that there is something radically wrong with the system of culture pursued by the majority of fruit growers. The occasional receipt of some fine quinces that are free from blemishes is the only thing to keep consumers from despairing of ever getting perfect fruits. But the quince responds to culture as well as any fruit, and they may be grown to perfection if the right rules are properly observed. To begin with, then, it is necessary to dispel a few notions that some growers have acquired through erroneous conception of an old trite say-

ing. Nearly all text books upon quince culture have said that they require moist soil, and many have interpreted this as meaning wet, boggy soil. More quince orchards have been set out in low, wet, cold ground, than upon good rich upland, properly irrigated. The quince invariably does better upon high, rich upland soil, where perfect irrigation can be given, and trees planted in such localities will bid fair to produce fine fruits.

The next point is to give the quince tree as much attention and cultivation as any other fruit. It should be remembered that naturally the quince shrub is a large, straggling growth, and never assumes the shape of a tree unless so trained. It will do better, however, if its natural rambling habit is somewhat checked, and a better shape given to it by judicious pruning. But too much pruning is injurious to it. Only thin out the suckers every season inside of the shrub, and trim the head to a symmetrical shape Beyond this do nothing with the pruning knife.

FIG. 1505.—UNPRUNED TREE.

Once a year at least, and twice is better, examine the stocks for borers, and cut them out and kill them, removing at the same time all suckers starting up around the roots. If the codlin moth or quince curculio are on the shrubs, spray freely with Paris green, and do not give them a good foothold. Spray as other fruit trees, soon after the fruits have set, in the spring of the year. The leaf and twig blight and scab which appear upon the fruit, must be conquered by spraying freely with the Bordeaux mixture. The scab in particular must be kept under control, as it ruins more fruit than a little.

As to varieties, select only the best. One of the best is "Rea's Mammoth," and it succeeds well in the climate of New York state. It produces a large, handsome orange-shaped quince, that sells readily in the market. The Old Champion is another large variety that should be cultivated, and Meech's Prolific is very fine as an abundant producer. The Fuller quince is a pear-shaped fruit, but of excellent quality. The Borgeat is a very fine early quince, and is very satisfactory. Do not select the Angers and Fontenay for producing fruits. They

are the best adapted for stock on which the dwarf pears are to be grafted. The Portugal quince is a smaller variety, and is of inferior quality, and the Chinese quince is not to be desired. The varieties named are old standard fruits, and can be depended upon. Other newer varieties have since been put upon the market, and many undoubtedly possess excellent qualities but the writer has never tried them, and cannot vouch for their goodness. In the present uncertain and unsatisfactory condition of general quince culture, it is better to select only the varieties that have shown themselves to be worthy of attention.— Germantown Telegraph.

FIG. 1506.—A PRUNED TREE.

FRUITS AT OUR FAIRS.

IN the last issue of your splendid journal I noticed an article by Mr. Alex. McD. Allan, in reference to the twenty collections of pears at the Industrial Exhibition, Toronto.

Now Sir, I may say that I am one also who was struck by the first prize collection there exhibited, for I presume the education of the public, particularly the beginners in fruit culture. But we need not be surprised at anything of the kind any more, since the Keiffer Pear is the best for the British market in preference to our delicious Bartletts, or Beurre Boscs, Sheldons, etc. Now sir, I am not going into the merits or the demerits of the collections above mentioned as I might get myself into a hornet's nest, the collections spoke for themselves to those who know the varieties, but I would pity the beginner who might copy the names of this collection with the intention of planting the same. Just think of a beginner planting one hundred trees of Easter Beurre, or winter Nelis, where could he sell the fruit; this I consider would be a great loss not only to the party that might plant, but also to the province at large. May I also ask what authority has the fruit grower or the exhibitor, and I may add the judges, to go by, as to the merits, value or the quality of our fruits as a

guide. The Exhibitions are a poor guide, as in my opinion the prize list should read differently, and this work should rest on the shoulders of the Fruit Growers' Association. For instance, the prize list reads: "Twenty best varieties of pears." Now sir, I might have in reality the best twenty, but my friend with the largest specimens, two or three worthless varieties, which I think should not count points enough to change the prize. I think this trouble to the judges could be settled for all time to come by stating the names of the varieties to be shown in the collections, so many winter, fall and summer; care to be taken not to name any summer varieties that might not keep to September. This method would keep out of collections any worthless varieties, such as the Easter Beurre, Winter Nelis, Josephine de Malines and so on. I want to be understood when I say worthless, that I mean worthless to grow for profit; this plan would work admirably with the collections of plums, since there is such a mixed up lot every year and they were particularly so last fall. There would have to be a few extra varieties named in the list in case of a certain variety failing to fruit, or otherwise one might count the number on hand, if they are short it will make easier work to judge, if one lot has the full number and the other is one or two short of the given number of varieties.

RODERICK CAMERON.

SHAFFER AND COLUMBIAN COMPARED.—During a very dry season, like the preceding one, many raspberries are liable to crumble more or less. Strange as it may seem, berries growing in a very wet place with poor drainage are affected in much the same way. Poor soil is sometimes a cause for the same trouble. In this case, the raspberry itself is at fault. Shaffer's Colossal is a vigorous grower and very productive, but while the berries are very large and finely flavored, they are extremely soft, of a dull ugly color, and not all firm, making it a poor variety for shipping. It is, however, a delicious berry, and is excellent for table use and for canning. The Columbian, which closely resembles the Shaffer, is a better berry, being much firmer, remaining longer on the bush, and retaining its shape after being picked; though even the Columbian is not an ideal market variety.—American Gardening.

PROPER TEMPERATURE.—"The following table will give the best temperature for the storage of some of our most common produce.

Apples	from	30°	to 45°
Berries	"	36	to 40
Celery	"	35	
Cranberries	"	34	to 38
Pears	"	36	
Onions	"	34	to 40
Potatoes	"	36	to 40
Asparagus	"	34	
Cabbage	"	34	
Maple sugar and syrup	"	40	to 45
Flour and meal	"	40	to 45
Brined meats	"	36	to 40
Dried beef	"	36	to 45
Fresh beef	"	37	to 39
Ham, ribs and shoulder	"	30	to 35
Eggs	"	33	to 35
Lard	"	34	to 45
Mutton	"	32	to 46
Veal	"	33	to 36
Grapes	"	36	to 38

Butter should be given a separate room with temperature at 22°."—Am. Gardening.

ELÆAGNUS LONGIPES (GOUMI.)

FIG 1507.—ELÆAGNUS LONGIPES.

UNTIL lately, not much attention seems to have been shown to this handsome shrub. Individual specimens flourished in many large gardens, but until the horticultural press had noticed it, and nurserymen had given it prominence in their catalogues, it remained somewhat obscure. Now that it is in popular demand the accompanying illustration, and a few words concerning it, may be of interest to our readers.

Elæagnus longipes is a native of Japan and belongs to the same class which gives us the well-known Buffalo Berry (*Shepherdia argentea*). It is a beautiful shrub of from five to six feet high, well branched, and with an abundance of foliage that is oblong-oval in shape, and in color pale green above

and silvery white beneath. In May it is covered with small, pale yellow blossoms, which appear in great profusion. The berries are oval, resembling an olive in shape, of about the size shown in the illustration, of a bright scarlet color flecked with golden yellow, and ripen in July. When fully ripe these berries possess a rather pleasant, aromatic flavor but before maturity they are acid and astringent. It is said that in Japan the fruit is eaten raw, and also pickled and preserved. In this country it has been found, when cooked like cranberries, to make very good sauce and pies and also to be valuable for jelly-making.

As to the hardiness of Elæagnus longipes we are not prepared to say just how far north it may be safely exposed without winter protection, but here, in New Jersey, the plants stand out, entirely uninjured all winter. We have seen no indications of any tendency to fungous disease, and it is perfectly free from insect attacks.

It would thus seem that this shrub is desirable for ornamental purposes and also, to some extent, valuable for its fruit for culinary use. Its symmetrical habit and pretty, pale, silvery foliage render it useful for grouping with shrubs of darker color, and when loaded down with ripe fruit in summer it is an object of much beauty.

We find in this, as with many other plants from Japan, some confusion of names. Thus there are *E. Longipes*, *E. edulis*, *E. pungens*, *E. Simoni*, *E. umbellatus*, and probably others that we know not of. Longipes, edulus, and pungens appear to be all the same plant, and longipes is probably the best name. Umbellatus is a different species from longipes and is known also as Simoni. It is a very strong, vigorous grower, often reaching a height of ten feet or more before bearing any fruit, and its season of ripening is in October. Longipes is by far the better species and comes into bearing at about two years old and when only a few feet high. There are also varieties with variegated foliage of green and white, all of which are very beautiful. E. longipes commands much attention when well-grown and is likely to become a popular shrub.

WRAPPED FRUIT.

At the Experimental Farms, Ottawa, some very interesting experiments have been carried out in connection with storing apples in winter. Some of the points involved were (1) wrapped *versus* unwrapped fruit; (2) cellar *versus* ground-floor storage; (3) close *versus* ventilated packages. These experiments began in the autumn and were carried through the winter. Twenty-four varieties of apples were included in the trials. The following results are the averages:

WRAPPED *v.* UNWRAPPED APPLES.

	Per cent. sound.	Comparative weight. Scale of 100.
Wrapped and stored in cellar	42	37
" storeroom	36	33
Unwrapped in cellar	32·8	29
" storeroom	33	23

Specimens wrapped in paper kept best, there were fewer rotten apples, and they lost least by evaporation. The ground-floor storeroom did not preserve them as well as the cellar.

CLOSE *v.* VENTILATED PACKAGES.

This was tested by packing equal quantities of six varieties of apples in boxes of the same make, with and without ventilation. Half of the cases were placed in the cellar, the other half in the upper storeroom. Results:

Package.	Stored.	Per cent. of fruit sound.
Not ventilated	Cellar	42
"	Storeroom	64·6
Ventilated	Cellar	49
"	Storeroom	45.8

The tight package preserved the fruit best in storeroom, but not in cellar; *per contra*. the ventilated did better in cellar than in storeroom.

ALEXANDER W. LIVINGSTONE.

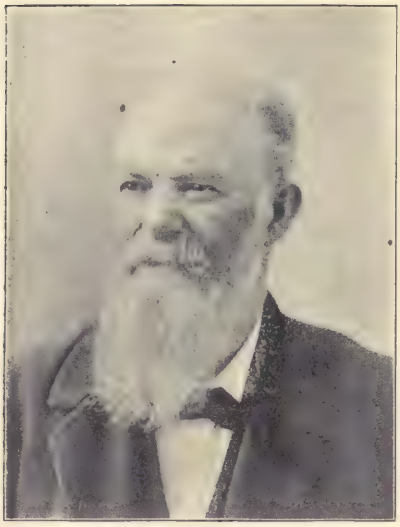

FIG. 1508.—A. W. LIVINGSTON, COLO., OHIO.

THE death of Alexander W. Livingstone, which occurred at his house in Columbus, Ohio, on the tenth November, closes a useful and successful career and one of special interest to members of the "gentle art." His work on the improvement of the tomato has been of almost world-wide benefit. Wherever tomatoes are grown Livingstone's "Beauty" and Livingstone's "Favorite" are known. While not a wealthy man, as business men in these days are acknowledged wealthy, the two seed-businesses established by him, and now owned by his sons, one in his home city and one at Des Moines, Iowa, both with reputations for integrity and fair dealing, give evidence of his success in a business sense. The story of his life work is especially interesting to men who practise intensive culture of the soil, showing as it does, how a man self-trained in nature's methods, with quick perception and faculties for close observation; with patience and hopefulness that long years of disappointing experiment did not dampen; and with the experience and skill induced by these years of unproductive work, did at length succeed in giving to the world a tomato fruit like the "Paragon," — to be followed by varieties of even finer quality, —developed from the rough, sour, seedy, and watery fruits that were found growing wild in the fence corners when he was a young lad. The question of hybridization vs. selection for the improvement of fruits and vegetables is also given renewed interest by this event. Mr. Livingstone followed the lines of selection in his work; and while some learned and skilled teachers and writers on Horticulture may hesitate to give full credit to him and his methods, there is no room for doubt about the honesty of his statements regarding his mode of work, and the results of his patient labor speak volumes on the success of these methods. The principle of "selection" is, in these days, taking a prominent place in the methods of fruit and vegetable growers. Working on this line Kellogg, of Michigan, raises and sells "thorough-bred" small fruit plants; Rogers, and other nurserymen, apply the same principle to the growing of the large fruit trees for sale; and Prof. Bailey and S. D. Willard of New York act on it in setting out their private orchards.

Mr. Livingstone's work on the tomato on the lines of *selection* in the earlier years was disappointing, because the *selection* was confined to taking the best specimens of fruits for seed, regardless of the character of the plant. Cultivation of the plant and selection of the best fruits for seed had made some improvement in the fruit over that of the wild plant; but while this inferior fruit

was sold on a limited scale on the market, and was canned and sold as a commercial commodity as early as 1848, its character was so poor that it is believed that as late as 1865 not an acre of tomatoes had been grown in the United States that would yield one bushel of uniformly smooth fruit. In this year (1865) his attention was attracted to a plant in a field of tomatoes which had distinct characteristics, being stronger than the average of the plants in the field, having heavy foliage, and bearing smooth fruit. His active mind now readily seized the idea of selecting special plants from which to take the best fruit for seed for future crops. Experimental work for a year or two confirmed the correctness of this line of selection, for the improvement of the tomato and further work on the same line was so successful that in 1870 he was able to place on the market the "Paragon," the first uniformly smooth tomato. This placed tomato growing on a permanent and profitable basis. Fifteen new and distinct varieties were originated and introduced by him between the years 1870 and 1897. In the latter year "Honor Bright," a variety quite characteristic in habit of growth and of maturity of fruit was placed on the market, the original plant of which had been found three years previously in a field of the "New Stone" variety.

Who placed the original plant of the "Paragon" in the field of common tomatoes? How did the original of "Honor Bright" come to be growing in a field planted exclusively with "New Stone"? Mr. Livingstone did not pretend to be able to answer these questions. Perhaps we shall know the answers some day.

Mr. Livingstone was born in 1822, of Scotch-Irish extraction. His earlier years were spent on a pioneer farm in central Ohio; and it was only in 1877 that he removed to Columbus to obtain better business facilities. (He had begun the seed business in a small way in 1856.) Leaving his sons in charge of the Columbus business he removed to Des Moines, Iowa, in 1880, where he established a similar business, but he returned to Columbus in 1890, having transferred the Iowa business to one of his younger sons. His business motto was—"Give every man the worth of his money: and his many business friends bear testimony to his integrity, fair dealing, and courteous attention to their wants in his line.

When a young man he became a member, and shortly afterwards an office-holder in the United Presbyterian church and to the end of his life he continued to take an active interest in its work. He took a lively interest in general affairs, and whether in the educational or municipal matters of his home city, or in state or national politics, he was always ready to defend the right and to give battle to the wrong. He was exemplary in his domestic life; and his kindly disposition and broad sympathy enlisted the confidence of the children and young people of his circle of intimate friends, as well as the warm friendship of the elders.

He is dead but his works live after him.

ORIGEN.

Ohio.

Flower, Garden and Lawn.

A WINDOW PLANT BOX.

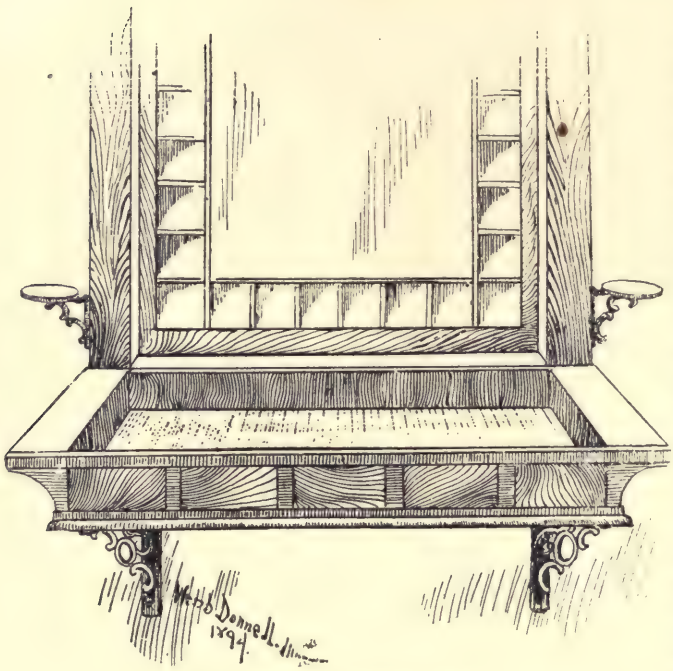

FIG. 1509.—A WINDOW BOX.

THE usual boxes set in the window on a broad shelf or a bench have manifest disadvantages, inasmuch as they are liable to be tipped over and to warp with the constant wettings necessary for the growth of the plants in them. Then, too, if more water is used than the earth will absorb kindly, there will be the drip—drip—dripping so trying to a careful Martha's soul. The illustration given here does away with all these difficulties. It is fitted to the window sill and supported by strong iron brackets, and is virtually immovable. A zinc tank is fitted into the box and prevents any leakage at all. It can be made easily at any tinsmith's and with small expense. It is well to have the sides of the box widened out into shelves for the accommodation of any small pots desired, and there may be two little round brackets at each side of the window just above the shelves. The whole thing may be made ornamental to the room by using wood that has a pretty grain, with more or less modest ornamentation in the making.—Webb Donnel, in American Gardening.

CLEMATIS JACKMANNI.

FIG. 1510.—CLEMATIS JACKMANNI, *from photo sent by Miss Henman.*

THE Jackman's Clematis shown in the accompanying engraving is about eight years old. It was spring planted in the spot it now occupies, and was only six inches high; just one shoot and some healthy looking roots. I took great care of it, you may be sure, encouraging it to grow by tying the shoots to supports as soon as they needed it, and every winter covering up the earth surrounding the roots with leaves or straw, and laying boards on top to keep them there. In the spring I took this away and carefully laid on top of the soil, or mixed in with it some well rotted manure and watered all summer the same as I did my flower beds. It has amply repaid me for the care, and this year the leaves were scarcely visible for flowers, some years the flowers remain for six weeks and there are a few old ones right into October. At first I took it off the trellis work and laid it down along the veranda covering it up same as roots, this I have learnt by experience is quite unnecessary. All that needs doing is to cut away with a sharp knife the part that is dead in the spring, but do not be in too great a hurry to do this, wait till you see what sunshine and warmth will do, the runners look dead when they are not.

HELEN HENMAN,
Sec. Thornbury Hort. Soc'y.

Our Affiliated Societies.

FIG. 1511.—FLORAL EXHIBIT AT WOODSTOCK.

To our Affiliated Societies.

We wish you all a Happy and a Prosperous New Year. We wish to be mutually helpful and to this end we are annually improving our Journal. We invite your frequent Communications for its pages, together with photographs of new or valuable fruits or flowers. We are preparing a Constitution and By-laws for Affiliated Horticultural Societies, which we believe will greatly aid in the conduct of your work.

We would suggest to our Societies the wisdom of holding monthly meetings, say, on the first Monday evening in each month, at which a single paper be read by some member, and fully discussed.

A table of flowers would contribute to the interest of each such meeting.

We hope before long to be able to send you a lecturer on some horticultural topic, and we hope you will get as many of your members out to hear him as you possibly can. We would suggest the giving of a liberal collection of plants for summer blooming, to be given away at a public meeting in April or May. We also advise floral exhibitions in connection with your public meetings, at which award cards may be given, but no money prizes.

In case of a special exhibition you will find it best to have a floral committee to get a list of the promised exhibits from members, and to send a drayman to collect and return all plants according to labels, and to arrange them at the hall. An orchestra would greatly enliven the evening. Members contributing flowers to the exhibit should be admitted free, all others should be charged 10 cents.

WOODSTOCK.—The Exhibition which was held by the Woodstock Horticultural Society was a great success except in one respect, viz, there was not that support given in by the public which might fairly be expected; still in spite of this a fair amount was realized for the benefit of the funds of the Society. The exhibits, as may be seen by the accompanying photograph, were very tastefully arranged and reflected great credit on the committee in charge, but, as usual, the work devolved upon a few of the more enthusiastic members and a number of their lady friends to whose good taste must be attributed the more than usual beauty of the decorations. Only a comparatively small number of the plants were shown in the generally adopted formal manner on benches or tables, etc., the greater number being placed on the floor in the style of raised beds, all spaces between being filled in with ferns of larger growth and the edges made of the smaller growing varieties. For two of these beds the whole of the plants were contributed by Mr. Frank Harris (professional) and our secretary, Mr. James S. Scarff (amateur), and it is not saying too much in stating that the latter gentleman made the exhibit of the Show. The largest bed was composed principally of the tropical style of plants, mostly owned by Messrs. D.W. Karn, T. H. Parker, W. H. Van Ingen, F. Mitchell and Mrs. Jas Hay. Among the other most noticeable exhibits were those of Mrs. McPherson, Mr. Frank Newton and Mrs. W. G. McKay, the latter lady making a most creditable exhibit of begonias. In the cut flower department the best contributions were the very beautiful collection of sweet peas of Mr. Sproat, and the gladioli from that hybridizer, Mr. H. H. Groff of Simcoe, and in the fruit department nice exhibits were made by Messrs. Croman and Grey. Taking it altogether the Society is to be congratulated on the success of their Show, which, without doubt, will do much to encourage that most delightful of all recreations, the practice of the art of floriculture.—W.

GRIMSBY, ONT., Horticultural Society's Floral Exhibit was held in the Town Hall on the 11th. The exhibit of chrysanthemums by Mr. A. E. Cole was excellent, containing a large number of varieties. Messrs. Webster, Bros., of Hamilton, showed ferns, bogonias, orchids and a large collection of palms, besides asparagus sprengeri, ficus elastica, Araucaria, Selaginella and Japan Ivy. The members of the society showed many fine specimens of chrysanthemums, cacti, and other house plants. One great mistake was making it a free exhibition. The hall was overcrowded. It would be far better to have admission tickets, even if they were all complimentary, to be had from the members of the society. Otherwise there should be a small admission fee for all who were not members.

FIG. 1511.—JAMES LOCKIE, WATERLOO.

WATERLOO HORTICULTURAL SOCIETY.—On the eleventh of November occurred the death of Mr. Jas. Lockie, late active president of the Waterloo Horticultural Society. He was a man who rose by his merit until he was appointed president of the Waterloo Mutual Fire Insurance Co., and having a natural taste for gardening he built for himself a small greenhouse, which contained about one hundred varieties of cacti and many other flowers. Our members will remember how heartily he welcomed our society and Waterloo in December, 1897, and will deeply regret his loss.

PICTON.—Mr. Walter P. Ross, the secretary, writes:

"I have much pleasure in stating to you that our Horticultural Society, which is affiiliated with your Association, has so far been very successful. I understand that several similar societies were started here some years ago, and only lasted a short time, so I think we should be well pleased. The HORTICULTURIST seems very welcome to our members, and the premiums sent out by your Association are also very much appreciated, as they certainly deserve to be."

HAMILTON.—Mr. Hirschmiller, of Hamilton, writes to correct name of W. Holt, which appeared as W. Hull in December number, p. 483. He says that his exhibit was so creditable that it was unfortunate to have his name wrongly entered.

FIG. 1512.—HOME OF MRS. W. J. MARSH.

THORNBURY.—The Secretary of the Thornbury Society, Miss Henman, sends us some little views in that section, and among others a pretty little gem, a winter scene, showing the home of the late Mr. W. J. Marsh, who was the first settler at Clarksburg, and at one time owned the village. His son-in-law, Mr. C. W. Hartman, a banker in the town, has been an enthusiastic friend of our Association and was instrumental in securing the plum experiment station at this place, in the favored Beaver Valley. The grounds shown in our picture are planted with black walnuts, butter nuts, Norway spruces, maples, with a wide stream of clear water running through, over which spans a rustic bridge. On the beautiful lawn the snowdrop and the crocus bloom profusely in the spring.

THE PRINCE EDWARD ISLAND Fruit Growers' Association have become affiliated with us, and receive our literature. This Association is ready to co-operate with us in every good object, for the advancement of the Dominion fruit interests. Already it has accomplished much for the development of the fruit industry in the island, some experimental export lots of fruit having been forwarded by it, and netted the growers excellent results, their Ribston Pippins bringing 20 shillings a barrel in Covent Garden. This was the first time apples had been exported from the island.

CARLETON PLACE. — Mr. Thos. Beall, of Lindsay, a gentleman who takes a deep interest in matters of horticulture for the love of the cause, and who is well versed in the subject, was in Carleton Place, on Friday, Nov. 18th, endeavoring to interest some of our citizens in the advisability of organizing a horticultural society here under the Agriculture and Arts Act, and was so far encouraged that a meeting of those showing an interest was held in the council chamber in the Town Hall on that evening, when Mr. Beall explained very fully the aims and objects of such societies and the benefits which they were designed to bestow upon the locality. The result was a resolution to organize such a society here, moved by Mr. R. Patterson, seconded by Mr. R. Morgan, put by Mr. A. H. Edwards and carried unanimously. Messrs. J. A. Goth and W. H. Allen were appointed canvassers to obtain members, and the proposition so far is meeting with the best of encouragement, and success is almost insured. A membership fee of only $1.00 has been decided upon, and as the society will affiliate with the Ontario Fruit Growers' Association, every member will receive a double return for his investment direct in the way of plants, bulbs and literature, aside altogether from the broader features of the society, which are the improvement of grounds, circulation of periodicals treating on horticulture, the holding of meetings to discuss matters of importance on this subject, exhibitions, experiments with bulbs, plants, etc. At the exhibitions prizes are not awarded, and the general public have the privilege of examining all exhibits and obtaining from the expert in charge of the department all needed information as to the manner of cultivating and caring for his particular class. The exhibition thus becomes a school of instruction for the benefit of the general public. We hope to see the new society grow to a successful issue. Parties desirious of identifying themselves with the movement are requested to give their names to either of the canvassers. Ladies have the some rights and privileges as the sterner sex in this movement, and are invited to give it their hearty recognition.

ROSE SOIL.

THE best soil to choose for roses, for garden culture is a clay or clay-loam. You can scarcely choose too stiff a clay for your rose garden, providing it is well drained. Clay-loam is generally preferred however; a close, very heavy quality of clay is difficult to keep open and friable, to such a soil the addition of sand, gravel, or humus of any kind, is of great benefit. Sandy soil is generally avoided on account of its failure to retain enough moisture, just at the time of flowering; the free use of cow manure is a great help to such soils. Good rose flowers may be grown on just about any soil, if proper care be given to the feeding, and it is hardly possible to feed too liberally. A rose enthusiast of our acquaintance, took all the tainted meat from a butcher store, for two summers; burying the whole pieces near the roots of his rose plants, as yet none seemed to have been overfed. Cow manure and bone-meal as fertilizers are still in the greatest favor with rosarians.

WEBSTER BROS., *Hamilton.*

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

New Year's Greetings.

THE CANADIAN HORTICULTURIST greets its five thousand subscribers with a sincere Happy New Year! Having now reached the mature age of twenty-one, she makes her debut this 1899 in a fine new dress, hoping to win the admiration and esteem of all her friends. Her desire is to serve the best interests of the amateur flower grower, the professional as well as the amateur fruit grower, and the amateur landscape artist. She, therefore, invites liberal contributions of experience in horticulture, with photographs in illustration, that there may be mutual helpfulness.

THE ANNUAL MEETING at St. Catharines was of special interest both to fruit and flower growers. A letter from Mr. Thos. Beall states that an affiliated Horticultural Society is being formed there. This is the best way of keeping in touch with each other and being of mutual benefit.

THE NEXT ANNUAL MEETING of the Association will be held in the town of Whitby, in response to oft repeated invitations from local fruit men, backed by the Mayor and Corporation of the town.

TOMATOES were not a success in the export of shipments of 1898; indeed they carried better in 1897, and then gave great encouragement; but this season they were reported arriving over-ripe and too soft to sell. We believe the explanation is in the variety, and we have yet to learn which variety is best to grow for this purpose. In 1897 our shippers grew Ignotum for export, and in 1898 the Dwarf Champion, Dwarf Aristocrat

and some other kinds. This would seem to indicate that the Ignotum is a better shipping variety than the others which were tried. Its fault is that it is rather large for the English market, where we want to offer dessert tomatoes only. One thing was notable about tomatoes, that they are little if any retarded in ripening, by cold storage.

THE EARLY CRAWFORD peach also has been condemned as an export variety. It it too soft and juicy to carry a long distance, so that notwithstanding its great value for our home markets, it must be discarded by the peach grower who is planting an orchard for export. What is the variety that will carry? is the first important question, and what is the quality? is the second. No doubt the Smock would answer the first question; but other varieties superior in quality, and earlier in ripening, may be more desirable.

CONCORD, NIAGARA, AND WORDEN grapes are also useless for export. They do not carry well, mildewing wherever there is the slightest crack, and so tender that they are easily broken. Then their flavor is so obnoxious to the palate of the Englishman, who has always at hand the Black Hamburg, and other varieties of high quality, that it seems foolish to undertake to force them upon the British markets. The only markets for these grapes appears to be in the North-West Territories, providing reasonable express rates can be secured. Our Association has appointed a Committee to make an effort in this direction.

IN grapes for export we must choose: (1) our best shipping varieties, and (2) our best flavored kinds. Mr. Robson, of Lindsay, elsewhere commends the *Mills* for this purpose. The quality is certainly good, and the bunch of fine size, and probably it would carry; but we notice one fault, that the berries do not hold very firmly to the bunch. Lindley is a capital grape, of beautiful color, a good shipper, but the bunch is often rather loose. Wilder should fill the bill, also Agawam, Salem and Vergennes. The latter however lacks flavor.

We hope that in 1899 the export shipments of grapes will be confined to these varieties, or others like them, and that it may be proved to some certainty, whether or not we may export any kind of grapes, as a private enterprise, with any hope of success. Perhaps some of our readers will suggest other varieties worth trying.

OF PEARS we have learned little new in 1898 over our experience of 1897, because of the short crop and the blemished character of much of the fruit. The Bartlett (Williams) has again been carried in good condition, and has been favorably received. The same may be said of Duchess, Anjou, Clairgeau, Bousock and even Kieffer. We notice however that buyers hesitate to buy the last named a second time, its quality is so poor. It is easily grown, easily carried, and fair to behold; but, alas! very disappointing to the eater.

APPLES keep better picked September 26 than October 13, according to Ohio B., II, 4. No doubt a fruit should be handled just a point off maturity, without waiting for the process of ripening to show itself, which is really a step toward decay. At Maplehurst we usually begin gathering winter apples about September 20th, finishing up, if possible, by the 20th of October.

POLLINATION will not take place and apples will not set, if blossoms are kept continually wet during the pollination season, as has been proved by experiments at the New Jersey Station.

THE AMERICAN POMOLOGICAL SOCIETY is now working in connection with the U. S. Department of Agriculture. The Society furnishes matter for the report and for fruit catalogue, etc., all of which is printed and published by the Department, as a serial portion of the Department's publications. Notwithstanding its wide sounding title, this Society has small meetings, and lacks the *esprit de corps* that is manifest in the meetings of the Fruit Growers' Association of Ontario, which latter, by the way, is now the largest and probably the most influential Society of its kind in the world During the last ten years our actual paid membership has grown from 1,500 to 4,150.

THE WESTERN HORTICULTURAL SOCIETY has published their first Annual Report. They have about fifty members, and a legislative grant of $100. The Secretary is Mr. A. P. Angus, Winnipeg.

THE ANNUAL REPORT of the Fruit Growers' Association of Nova Scotia for 1898, contains the papers read at the Annual Meeting, Wolfville, last January. The Secretary is Mr. S. C. Parker, Berwick, N. S.

SPRAYING WITH PURE KEROSENE.—Last summer we tried spraying our rose bushes with a very fine spray of pure kerosene to destroy the green aphis. We used Mitchell's Hand Sprayer, which makes the finest perceptible mist, and had excellent results—the ce were destroyed and the bushes uninjured. We tried the same spray on our Akebia vine with injurious results on the tender young wood, and therefore cannot yet speak as confidently regarding the use of kerosene as we would like. Mr. H. P. Gould, of Cornell, has made some experiments and writes in Bulletin 155 that pure kerosene is likely to seriously injure peach trees, even when dormant; a twenty per cent. solution, however, is safe at any time. Apple trees are less susceptible, often enduring pure kerosene without injury, while 50 per cent. of kerosene is quite safe. The safest time to apply it is on a bright sunny day. A solution of 20 per cent., i.e., 1 part oil to 4 parts water, is harmless to plants and destructive to insects, even to the San Jose scale.

AN AGRICULTURAL COLLEGE IN NOVA SCOTIA.—We have just received a clipping from the Halifax Herald, containing an address at Wolfville, by W. C. Archibald, in which he eloquently pleads for the establishment of a first class agricultural college at Wolfville; a college in which, as he says, "any person can find instruction in any study, beginning with agriculture as the chief corner stone."

There is no doubt that this is the true means of correcting the unequal condition of the farmer in the social scale; as well as of securing to him better returns for his work.

OUR PREMIUM PLANTS are giving splendid satisfaction. For example, Mr. D. W. McFarlane, Picton, writes:—The Crimson Rambler you sent me last spring, has exceeded my expectations. It sent out two shoots of between three and four feet in length, with one cluster of roses, fourteen in number. I prize it very much.

CHESNUTS.—Bull. 42, Delaware, is devoted to the European and Japanese chesnuts. On the whole it would appear that more is to be expected in the near future from the Japanese varieties than from the European. The Killen, one of the former, has already been referred to in these columns.

A PROMINENT NOVA SCOTIAN.—Mr. W. C. Archibald, above mentioned, called at this office on 31st ult., on his way to visit the Agricultural College at Guelph. This gentleman is the chairman of the Board of Control of the School of Horticulture at Wolfville, and now hopes to be instrumental in having an Agricultural College established in his province.

PRINCE EDWARD ISLAND.—The President writes that the subject of better storage and ventilation for apples in ocean transport is to be discussed at their next meeting, and they will unite with us in asking legislation on this important condition of success. He says the island has been so much encouraged by her recent export of apples that considerable planting will be done in the coming spring.

THE NIAGARA PENINSULAR FRUIT GROWERS have elected Wm. Armstrong, St. Catharines, President, and C. E. Fisher, Queenston, Secretary. The next meeting will be held in St. Catharines about the middle of January to listen to Professors Fletcher and Macoun of Ottawa.

THE BURLINGTON FRUIT GROWERS have elected A. W. Peart, Freeman, President, and W. F. Fisher, Burlington, Secretary.

FRUIT PULP would surely be a profitable article of export in seasons when green fruit is high priced; and since it will keep indefinitely, when once properly sealed up, we cannot see why it need be sold during those seasons when it would not bring a margin of profit. Here is a clipping from the Greengrocer, London, England:—

There is a good chance for our Colonial fruit-growers in supplying the London market with fruit pulps. This year French and Italian apricot pulp is extremely scarce. Last year it could be bought at from £15 to £20 per ton; it is now fetching very much higher prices, and we are informed that until June next prices are likely to rule high. It is put up in tins containing about 28lb., but the principal requirement is that the pulp shall be quite clean and free from specks. Dried apricots also will be wanted, and will fetch good prices. The pulp must, of course, be boiled with just sufficient sugar to make it keep in good condition.

What is to hinder our exporting raspberry and peach pulp, with profit?

GREEN GRAPE ROT.—When holding institutes in the famous grape belt of Western New York, the subject of black rot of the grape was thoroughly discussed by the growers and also by the scientists. The almost unanimous verdict was, that spraying with Bordeaux mixture pays. In some seasons there is no apparent good result, but there nearly always is a decided benefit. It pays to clean up all trash, and especially all old, rotten grape clusters, and burn them. Even the tendrils on the vines were known to be a place of refuge for the spores of the black rot, and they were taken off by some careful vineyardists. Cases were related where the disease had spread from a dried berry or two left from former years.

Question Drawer.

Fertilizers for Specific Purposes.

1038. Sir,—What kind of manure, either natural or artificial is best for bringing out in perfection, the distinctively blue colour of the Colorado Blue Spruce.

John M. McAinsh, *Belton, Ont.*

Reply by Frank T. Shutt, Chemist, Dom. Expl. Farms.

In answer to the above question, I would say that in all probability the striking and beautiful colour of certain Colorado Blue Spruce trees is not caused by any peculiarities in the composition of the soil. Since in the same plantation and upon the same soil, only a few of these trees may develop this remarkable sheen, it cannot be considered as due to the predominance of any one element of plant food.

We, however, know very well that an abundance of nitrogen in the soil, as furnished by barnyard manure, nitrate of soda or sulphate of ammonia, intensifies and darkens the green colouring matter in the foliage of many flowering plants and farm crops. There is also good evidence to show that the presence in the soil of soluble iron, as, for instance, supplied by sulphate of iron (green vitriol), has a marked effect of a similar character.

Whether any change in the colour of the Colorado Blue Spruce can be induced by any such means is *extremely doubtful* to the writer, but it would be an interesting experiment for your correspondent to apply to the soil about a tree, say, 1 pound of nitrate of soda, and in another case half a pound of sulphate of iron, and note if any change in the colour of the foliage results. Evenness of distribution would be effected if the materials were powdered and mixed with five times their weight of dry loam and sand.

It may be well to point out that these intensely blue spruce trees cannot with certainty be reproduced from seed, but may be propagated by cuttings.

Cyclamen.

1039. Sir,—I noticed in the November number a reference to a new style of Cyclamens, and I should be glad to know from your contributor where the seed for this strain is to be obtained, and under what name it is known.

J. A. Robertson,
Chateauquay Basin, Que.

Reply by Wm. Bacon, Orillia.

The Cyclamen giganteum grandiflorum can at present be obtained of almost all first-class seedsmen, but if the subscriber should write to Wm. Ewing & Co., of Montreal, Que., and mention my name he would be likely to get the very best that the European, Canadian or American growers have produced. I sold him seeds of my choicest blooming plants at 1½ cts. per seed. Usually they get 27 to 35 seeds in a 25 cent packet.

Hardy Fruits.

1040. Sir,—What are the names of some of the hardiest varieties of apples, pears and plums, that might stand 40° below freezing.

Lewis Weigand,
Upper Thorne Centre.

We have not yet completed our list of the best hardy varieties of fruits for the north; and therefore can only make our correspondent a partial reply. Of apples he should try Transparent, Duchess, Alexander, Wolf River, Wealthy, Gideon and Scott's Winter. Of pears, Flemish Beauty and Sapieganka. Of plums, Moore's Arctic, Miner and Kingston.

Ornithogalum Arabicum.

1041. Sir.—Some of the members of the Hamilton Horticultural Society would like to know if any of your readers have forced the above named plant with success.

J. M. Dickson, Hamilton.

Open Letters.

Grapes for England.

SIR,—By to-day's mail I send you a ripe bunch of the Mills grape grown in my garden at Lindsay and gathered on the 21st of September for exhibition purposes. All my late kinds also ripened their fruit this season, namely, Jefferson, Agawam, Vergennes and others, showing the possibility of gratifying the most fastidious taste as to color, flavor and size by a range from Moore's Early, Jefferson, Lady Washington, Mills, even in this latitude, whenever we are fortunate enough to have a favorable season.

May I make a few suggestions regarding the Mills grape and other hybrids. The Mills was produced by a cross between the European species Vinifera and our standard American varieties, resulting in the production of a grape that has the essential characteristics for export. In the hands of a skilled hybridist there might be produced from it a progeny earlier in ripening which might meet the requirements of the middle, mechanical and laboring classes of England. The vine is healthy, hardy and productive; the fruit is attractive, of fair size both in berry and bunch, and in flavor it is of near approach to the European varieties; the flesh is firm, meaty and adheres well to the cluster. It is a good shipper and a good keeper, an excellent combination, and if to this could only be added the property of early ripening, we might reasonably expect to find a demand for it at popular prices in the old country.

This last summer I had the pleasure of spending about six weeks in England during July and August, and, being interested in fruit, particularly grapes, I noticed the difference in quality, color and size, as accounted for by the district in which the fruit was grown. England receives large importations in season from Spain, Portugal, France, and the Channel Islands, the prices varying according to the size and quality from 12c. to 60c. per lb. I have a strong impression that a consignment of a few tons of such showy grapes as Niagara, Agawam, Vergennes and other good keepers could be profitably disposed of in the latter part of September in some of the large manufacturing towns in the north of England, as, for instance, Leeds, Stockton, Middlebro. Newcastle, Sunderland, each with an average population of about 100,000. In the hands of a person with some knowledge of fruit and an acquaintance with a few leading wholesale fruit men, I believe our grapes could be successfully introduced in this way I would have no fear of making a success of such an enterprise if the grapes were in good condition.

W. M. ROBSON.

Lindsay, Ont.

A New Strawberry.

SIR,—A new strawberry, a chance seedling, was found in Ulster Co., just north of Orange, and in the heart of the Hudson river fruit region, and was fruited in a large plantation for the first time last season. I gave it a visit and I grew very enthusiastic over it. If you did not see our paper containing an account of it, with a cut, write me and I will send it to you. It will be on the market next spring—perhaps it is now. I have a short row in my home garden which the originator's representative gave me, but I am in honor bound not to give or sell any plants until after he has disseminated it, which I believe will be in the coming spring.

I think it would please you if you could see it, and I hope you buy a few plants; two or three dozen next spring and try it. I can say this for it in its home:—Superb foliage, rank grower, perfect flower, berry large and round, regular in shape, very solid, crimson in color, and solid enough for a first-class shipper.

As an indication of its vigor, let me say, that last summer I set out a row of Wm. Belt in my garden, grown there, and they made a better than average growth. Two weeks later I set out the Gibson and they soon passed the Wm. Belt, larger plants, more runners and an altogether ruggeder plant. Of course, I have no interest in it; but I thought you might like to try it. The propagator's address is Marlboro', N. Y., C. H. Baildon, and he is a very honorable man.

E. G. FOWLER, *Port Jervis, N.Y.*

A Sham Pear.

SIR,—I am taking the liberty of sending you a little piece of news that I think might have escaped you while in the city on Tuesday.

There is a gentleman here, who grows some very fine pears that have long been noted prize winners at the country fairs. This gentleman very kindly sent a few specimens to the Horticultural exhibit; these were seen and admired by quite a number of people; one of the admirers is a gentleman who has a hobby for mock-orange gourds; he at once declared he could beat the pears all hollow.

The joker hustled home and picked the largest and best specimen of gourd he could find, rubbed a little vinegar on the side and brought out a beautiful color; he then packed it very carefully in a neat little box of cotton batten, so as to give the impression that it was a dead ripe pear (in reality to hide the bottom of the gourd, which is very unlike a pear).

The "pear" was then brought to the show, where there was much discussion as to its variety and mode of culture. The prize winner declared that it was wax, another that it was wood and tinted. But the owner would not allow his precious (pear) to be taken from the box, and so the joke went on, until some one that knew, 'let the cat out of the bag.' And now the horticulturists are wondering who it was that did not know a gourd from a pear.

R. B. C., *Hamilton.*

DRINKING FOUNTAINS, BELLE ISLE PARK.

THE
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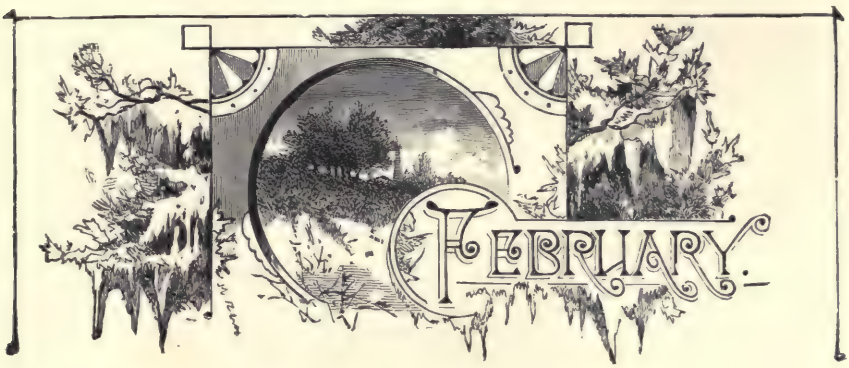

OBJECT LESSONS IN CITY PARKS.

FIG. 1513.—

TO make the public object lessons worthy of imitation, their author must have a master mind to conceive and its keeper must be a past master to execute. To plan out the various parts of a park so they will fit the uses for which those parts are designed, is almost an impossibility; but if the designer can so plan that future additions may be made without the various uses over-lapping each other or blending inharmoniously together, then his legacy to the park is a rich one.

In general, parks are supposed to be small isolated territories not open to expansion of our Uncle Samuel, and consequently are supposed to be free from the many evidences of his commercial activity. They should be retreats into which one may lose himself from his daily work, and everything that goes to make it complete should symbolize the words: *rest*, *recreation* and *recuperation*.

My idea is that their beauty is enhanced by a consistent arrangement, or is destroyed by associating things of divergent nature. Suppose the scene is that of wildness, as a native woods, ravine or small open glade, it should be removed and hidden from the more cultivated portions. The only improvement necessary is to make it accessible. A foot-path made after the plan of an Indian trail, a fallen tree as seats and a

Fig. 1514.--View in South-East Quarter of Belle Isle.

FIG. 1515.—

drinking fountain made as a natural spring are in the line of improvements that are permissable. Everything done to improve it shows as little as possible the effect of man's handiwork.

In grounds where the scenery is artificial, that made by man, another condition exists. Flower beds may abound ; banks of flowering shrubs may fringe groups of ornamental trees ; drinking fountains of artistic designs may be introduced, as may also a small lake or pond, fringed with ornamental grasses and filled with subtropical water plants. The lawn should be well clipped ; the edges of the walks and drives properly edged, and everything here should show the careful attention of man. This picture is the opposite of the previous one. The careful performance of the work in the latter is as necessary as the rigid exclusion of it in the former. It is the proper understanding and carrying out of the details of these pictures that gives the park its character.

The picnic-grounds and play-grounds are localities that occupy a medium place between the two previously pictured. There must be abundant shade and a fairly good lawn, also tables, seats and drinking fountains sufficient for the needs.

A year ago, our Park Board placed in the picnic-ground a number of wire baskets for refuse paper. They are about three feet high and twenty inches in diameter. On one side, they are concave, so they will fit against a tree to which they are locked by a chain. These baskets may not have been in proper keeping with good landscape effect, but they are far better than having the discharged lunch parcels scattered over the lawn. When I state that from six to eight cords of picnic refuse is gathered after a big picnic day, it can be seen that these baskets are very valuable in keeping the lawns free from unsightly litter.

Parks that attract large crowds must be well supplied with drinking fountains. These should be of such design as will harmonize with their surroundings. We are discarding the cast iron affairs and are using field stone.

The horse drinking fountains should be high enough so that the horse can drink without unchecking. It is unaccountable why this is not more often done.

In no one thing can parks be better object lessons in good taste than in the location and construction of its walks and drives. The principal ones must be of a nature that they are in good condition at all times to be in keeping with park surroundings ; they should be of gravel or crushed stone. The latter, more commonly known as macadam roadways, is the kind that best fills the requirements, as it is comparatively free from mud in wet weather and the dust is kept to the minimum with a small amount of sprinkling during droughts.

In this day of good road agitation,

FIG. 1516.—SCENE IN CASS PARK.

the public can rely with safety upon the experience of the park systems of our larger cities in the making of macadam roadways. In localities in Michigan where field stone is found, there is reason to hope that in the near future, means will be provided by which permanent and lasting macadam roadways will be built.

The main drives around the park must be of this permanent nature. No matter what the landscape is, the public demands it and no violence is done to landscape effects, if the drive skirts wild and romantic scenes. In such places no improvement outside of the roadway should be made, thus giving opportunities to all to come in direct contact with nature. Turf roads or mere trails may lead off the main driveway to more thorough contact with the wildness or to reach a desirable picturesque spot.

In laying out the drives and walks caution must be exercised in making the curves. Do not let it appear that a curve is made because the curve itself is desired. If the ground is open, let the curve be a long sweep following the lay of land to make easy ascent or descent to the hills, but through the woods the curves may be shorter; even abrupt. The bend should be sufficient to hide the road ahead of the curve. It is human nature to wish to see beyond the next turn and by proper landscaping one can be led on and on, each turn opening up new pictures, adding zest for more; but let the traveller see the drive beyond the bend, the road looks too far and he gives up and returns.

I have in mind a walk that follows along the bank of a stream, as it runs through an open lawn. The walk is constantly changing its course and it is possible to see every curve in its sixty rods of length and its termination from the starting point. In fact, it fairly seems a wriggle as the eye follows it along. I never saw anyone walking on this path, but were it more or less hidden by shrubbery, I think it would be extensively used, as the scenery is beautiful; but, as it is now, it all can be seen at a glance, so a closer inspection is not invited.

Paths should be arranged sufficiently direct so that cutting across the lawn is unnecessary, and the surface should be such that there is no tendency to walk on the lawn. A plantation of shrubs is more effective than the sign "No path here," and a thorough sweeping up of the loose stones on the walk is better than the sign on the adjacent lawn "Keep off the Grass."

Last spring the Detroit Park Board tried an experiment of removing the "Keep off the Grass" signs from every lawn on the park system. No serious damage followed and the benefit was inestimable. When you consider that there are twenty-two small parks scattered throughout the heart of the city and are the lungs of thousands of people, it can be realized that the experiment was a momentous one.

The plantations of flowers and shrubs that go to make up the beauty of a park should have a character. They should be so arranged that their effect is combined in one grand whole. There may be planted in one locality plants that blossom at the same time, and when they are at their best their beauty will attract the sight-seer to that place. A fortnight later it will be another collection and so on throughout the season. It may be a pansy bed, a collection of peonies, a mass of spiraea Van Houtti and viburnums, lilacs, roses, phlox, petunias, hybiscus, hydrangeas, golden rods, rudbeckias and sunflowers, and ending up the season with

Fig. 1517.—One of the Drives in Belle Isle.

a mass of bright colored autumn foliaged trees and shrubs as Thunberg's berbery, sumach, sassafras or pepperidge, etc.

It is the aim of the Detroit Park Board to have the character of the different parks dissimilar.

Next in size to Belle Isle Park is Palmer Park, on which is situated Ex-Sen. Palmer's log cabin, filled with relics of olden times. It is desired to carry out in this park the primitive conditions of early settlers, instead of gaudy geraniums and assertive canna, will be the old fashioned flowers. In this park will be collected all the plants obtainable that are native of our State, that are worthy of cultivation. It will be a botanic garden of Michigan. It will be such a distinct and unique feature and object lesson that a person wishing to see our various parks can form no idea of this one by seeing any of the others.

That the parks may not be defaced, the rules governing the privilege of stringing telegraph and telephone lines should be a prohibitory one, and those for park purposes should be placed in conduits. As to the advertisements that may from time to time find their way within the park boundaries, there is but one way to settle that—a complaint in the police court. In the Detroit parks everything in the way of an advertisement is prohibited, even to handbills.

A few regulations giving the main rules of a park that are most apt to be violated may be placed at the entrances. Outside of that, the fewer rules and signs posted about the park the better it is for all concerned.

The park should be conducted on broad lines, and the freedom of the people should be restricted as little as possible. By this, I do not mean that lawlessness is allowable, but that there will be perfect freedom for the enjoyment of its advantages. There should be proper facilities for the enjoyment of the various amusements, a place to bathe, a place for children to wade and sail boats; there may be baseball grounds, football grounds, bicycle tract, lawn-tennis or any sport that may be in popular favor.

One more point. Let the parks be an object lesson in education. New or little known plants should be labeled. As the landscape features are built up, set aside a place where plants can be planted, each family more or less by itself, with a label to every species.

There are many very desirable plants growing in every park that people would like to obtain for their homes, but that do not know its name, and consequently cannot order it from the nurserymen. A label giving its common name, scientific name and its family, places that plant where it can do its full duty to all.

R. J. CORYELL,
Supt. Detroit Parks.

Detroit, Mich.

DRIED APPLES IN FRANCE.

CONSUL TOURGEE, of Bordeaux, writes The Fruit Trade Journal, "The decided increase in the importation of dried apples and pears should call the attention of the shippers of these commodities to the necessity of keeping this market well supplied with information in regard to the trade. This consulate was overrun during last autumn and early winter with applications for addresses of shippers of dried fruits in the United States. I found it very difficult from the resources at my command to answer these inquiries. In a general way this difficulty exists in regard to all lines of trade."

Fig. 1518.—

FERTILIZERS IN COLD CLIMATES.

IT is well known that quick growing crops, or crops grown in countries which from their high latitude or other causes, have a comparatively short season of growth, require plant food in a form very readily assimilated by the plant. An important matter in relation to this point is that with a shortened growing season, maturity closely follows actual growth.

If a crop of potatoes, for example, are grown in a northern latitude to be used as seed for more southern sections, it is very important that ample supplies of the mineral manures, potash and phosphate, should be assimilated early in the growing season. Only a fully matured potato gives satisfactory results as seed, and a dwindling supply of mineral fertilizers, during the latter stages of growth, is pretty sure to result in a crop of immature potatoes; of lessened value as food, and of little value as seed.

Canada-grown seed potatoes have for a long time been used in the United States for early potatoes, but of late years have only too frequently failed to give satisfactory results. It is very common for the "eyes" to fail to germinate, though the tuber is fair and plump so far as outward appearance goes. This is very probably due to the exhaustion of potash in many of the Canadian soils, from constant cropping without adequate restitution. Where wood-ashes are used freely, the same result happens very commonly; wood ashes are a good source of fertilizer potash, but they also carry large quantities of lime which acts to liberate the supplies of potash existing naturally in the soil; as a consequence, the soil readily becomes deficient in potash. In the United States farmers have a common "saying" to the effect that lime enriches the father at the expense of the son, meaning that the use of lime tends to exhaust potash quickly. If sufficient supplies of wood ashes were used to keep up the supply of potash, there could be no damage from the free use of lime, but to properly supply the potash needed yearly would require more wood ashes than the Dominion can supply in ten years.

Potatoes are an exhaustive crop. They are largely water and starch it is true but a good crop of potatoes remove more potash than nitrogen. Wheat removes only a little more potash than phosphoric acid, but oats much more closely resemble potatoes. An acre of oats will require more than twice the potash than an acre of wheat. What has been said of the influence of an ample supply of fertilizer minerals for the proper maturity of potatoes, applies with equal force to wheat and oats, or other crops. As seed, their condition for use in the Dominion is just as important as it is in the United States.

To insure a supply of fertilizers at the proper time, use them early as well as in ample quantities. The mineral fertilizers, that is phosphoric acid and potash, will lose little or nothing by being applied weeks or months before plant growth begins, so long as surface washing can be prevented. With nitrate of soda or sulphate of ammonia, the application must be made only shortly before seeding. With minerals, apply enough and apply it early, is a safe maxim.

R. GARWOOD.

NOTE.—While we agree with our correspondent in most of what he says, and appreciate his remarks about the value of fertilizers, we can hardly accept his statement regarding the exhaustive action of wood ashes, which we do not think has been proven by fact, nor as to the decrease in the germinating power of Canadian potatoes, as the result of lack of potash, which is a new statement to us. EDITOR.

ORIGIN AND DEVELOPMENT OF SOME COMMON FRUITS.

FREDERICK C. NEWCOMBE, Ph.D., Jr. Prof. of Botany, University of Michigan.

MAN is not content to see the outside of things. It is not enough for some of us that we can recognize apples and grapes as such, but we wish to know how these things come to be, how they originate and how they develop. We are to consider for a few moments the origin and development of a few of our common edible fruits.

We all know that the flower precedes the fruit, and before we can talk of the origin of the fruit we must look to the structure of the flower. In Fig. 1519 is

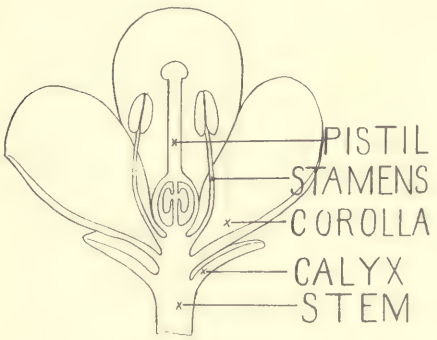

FIG. 1519.—Diagram of a flower in longitudinal section.

shown a diagrammatic view of a longitudinal section of a complete flower. The parts of the flower are seen to arise in circles from the flower stem, the lowest circle being the calyx, the next above the corolla, then the stamens, and sitting on the apex of the stem is the pistil. The calyx is usually green, and surrounds the stem as a cup or as several small leaves; in the bud it is folded closely over the other parts within, often protecting them by a waxy covering from the intrusion of rain, and from bird or insect enemies by distaste secretions. The showy corolla which to man's eye paints nature in beautiful colors, is a sign unfurled by the plant to tell insects of good things to eat, of banquets of pollen and nectar. The stamens with slender stalks supporting pollen-sacs are the male organs whose pollen-grains effect the fertilization of the ovule and thus start the growth of the fruit. The pistil is the female organ containing in its flask-shaped base, or ovary, the ovules which are the germs of seeds.

This is the structure of a simple and complete flower. But every part just named is capable of modification, and there is no part among those named that may not be absent from some species of flowers. In the pea and the bean flower, for instance, the corolla is so modified that its separate leaves are no longer all alike, but together present a peculiar butterfly appearance. In the pumpkin the corolla is all in one piece forming a beautiful yellow funnel. The corolla may, instead of one, be composed of several rows of colored leaves, as in the cultivated rose or the white water lily. On the other hand, the corolla may be wholly absent, as in the flowers of the sugar maple; the calyx and corolla may both be absent as in our American sycamore and in the female flowers of the birch; the stamens may be absent as in one kind of flowers in the melons, or the pistils may be absent as in the other kind of flower of the melons. When all parts are present in a single flower, the pistils and stamens may become mature at different times, thus insuring cross-fertilization, as in the pear. The successful fruit-raiser takes

all these variations into account; for he has learned that in order to raise certain kinds of strawberries, grapes, pears, etc., he must so arrange his plants that there shall be a plentiful supply of ripe pollen when the pistils are ready for fertilization.

What is a flower taken as a whole? It is a modified branch; for it has an axis or stem from which grow the parts of the calyx and corolla, these parts being leaves. The stamens and the pistils we belive to be also modified leaves; for we have many plants like the tulips and white water lily in which the parts of the corolla pass gradually into stamens. This is shown well in Fig. 1520. Moreover, there are many plants in which the pistils develop into leaves instead of taking their usual form; our common trillium or wake robin is one of these.

FIG. 1520.—WHITE WATER LILY (Nymphæa odorata), showing graduation from sepal on the left, through petals to stamens on the right.

If we wish to see the origin of a fruit, it is not enough that we find in the flower the part from which the fruit comes. We can go still farther back and find the origin of the parts of the flower. If we were to dissect a peach bud, or almost any other flower bud in December, we should find all the parts of the flower present in small size. If however, we were to make an examination in August or September, we should find the buds then forming. Suppose we dissect carefully the tip of a branch in the late summer; we should find the appearance shown in Fig. 1521. The first view shows the apex of the stem directed toward the observer, while growing from it is a circle

FIG 1521.—DEVELOPMENT OF THE ORANGE BLOSSOM. (Citrus aurantium). 1, tip of stem showing the origin of the 5 sepals; 2, the 5 petals beginning to show alternating with the sepals; 3, appearance of the first 5 stamens; 4, other stamens arising on the flanks of the first 5; 5, same stage as the preceding, but in different position, with calyx and corolla cut away; 6, origin of the circle of pistils as little hoods on the stem; 7, origin of pistils showing alone; 8, older stage of stamens and pistils; 9, 10, 11, interior views of pistils; 12, young flower with pistils united into one in the middle, and other parts cut away on the near side; 13, 14, showing the origin of seeds in the pistil; 15, 16, older pistils; 17, 18, mature flower; 19, mature pistil; 20, mature stamen; 21, ovules in pistil; 22, ovule enlarged.

of little tongue-like structures. These five tongues are the germs of the five sepals. In No. *2*, we see the sepals grown longer, while just above, and alternating with them are five little elevations, the beginning of the five petals. In No. *3*, sepals and petals have enlarged, and now appears a third circlet of elevations, the germs of the first stamens. Soon other stamen germs grow out beside these first five, so that in No. *4*, *5* and *6*, where calyx and corolla have been partially cut away, one sees a circle composed of many little knobs. In No. *8*, still another circle of elevations has risen from the stem, these being hood-shaped, and representing the beginning of the circle of pistils. In Nos. *12*, *15* and *19*, these pistil-germs have enlarged and finally

united to make one compound pistil. Nos. *13*, *16* and *21* show how the ovules arise within the base of the pistil. Many of our edible fruits are formed, as we shall see, by the extraordinary development of the pistil, and it will be well to remember that the first indication of the origin of such fruits is one or more little tongues of tissue rising from the surface of the stem at the tip of the branch.

FIG. 1522.—A TO F NORTH AMERICAN FOX GRAPE. (Vitis labrusca) A, branch with leaves and tendrils; B, unopened flower; C, male flower, D, female flower, with sterile stamens and glands alternating with the stamens; E, F, Cross and Longitudinal sections of the pistil; G to M, European Grape (Vitis vinifera). G, flowering branch; H, J, Longitudinal and Cross sections of the berry; K, L, M, the seed.

One of the simplest of our market fruits is the grape, illustrated in Fig. 1522. The figure *A* is a branch from our American Fox grape, the ancestor of many of our cultivated varieties. *B* shows a flower of this species, the calyx being a mere ring around the stem, while the corolla never opens, but early falls off, revealing the stamens as in *C*, or the pistil with abortive stamens as in *D*. Thus we see that the flowers of this grape are of two kinds, male and female. The only part of the flower that develops into the fruit is the flask-shaped pistil, which after fertilization begins to swell, becomes fleshy, loses its flask form to become spherical, finally becoming pulpy, a delicious fruit of the simplest origin—a modified pistil.

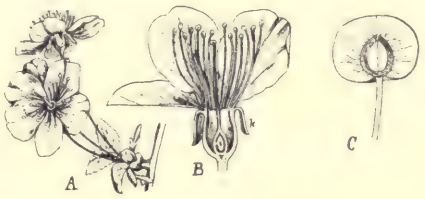

FIG. 1523.—SOUR CHERRY. (Prunus cerasus) A, flower cluster; B, flower in longitudinal sections, showing pistil sunken in cup-shaped stem; C, fruit in section.

From the grape we pass to cherries, peaches and plums, the cultivated species all derived by America from the old world. In Fig. 1523, the illustration *B* shows a cherry flower longitudinal section. There are depicted flower stem, calyx, corolla, stamens and a single pistil. The same parts are present here as shown in our diagram Fig. 1519, but in the cherry the parts are differently disposed.* The stem or axis instead of preserving its conical form becomes cup-shaped, bearing the pistil in the bottom of the cup, and all other parts on the rim of the cup. No one could tell by looking at this flower alone what parts would develop into fruit. It looks very much as though not only the pistil but also the cup-shaped stem would become fleshy. But in the immediate development after fertilization, the cup ceases to grow, while the single pistil begins to swell, the inner part of its wall becoming stony, the outer part fleshy and edible. The relation of stony and fleshy part is shown in *C* (1523). Thus the fruit of the cherry, the peach and the plum are made solely from the enlarged base of the pistil. These fruits are therefore in origin the same as that of the grape.

*In the following account the author has chosen to regard the cup-shaped base of the flower of Rosaceæ as an extension of the stem rather than as a calyx tube.

The fruit of the lemon and orange are also derived from the pistil alone; but whereas in the grape, cherry, peach and plum it is the wall of the pistil or ovary which becomes the succulent part, in the lemon and orange the ovary wall forms only the yellow skin, while the juicy flesh is formed by a mass of hairs which fill up the cavity of the ovary.

The apple blossom is illustrated in

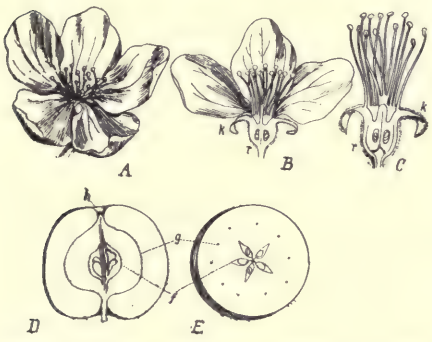

FIG. 1524.—THE APPLE (Pirus malus). A, flower; B, flower in section; C, flower in section with corolla removed; *r*, the axis or stem which develops into the fruit; D, fruit in longitudinal section, showing persistent calyx *k*, wall of ovary *f*, and vascular bundles *g*. E, fruit in cross section.

Fig. 1524. If we look closely at the sections of flowers as shown at *B* and C, we shall note two principal variations from the structure of the cherry flower. The apple instead of one pistil as in the cherry has usually five; and the pistils instead of sitting freely in the bottom of the cup of the stem as in the cherry, are fused with the cup of the stem in the apple. As the fruit begins to develop after fertilization, the stem-cup, as well as the pistils, enlarges, carrying the rest of the flower on the rim of the cup for a short time; soon the corolla, the stamens and the upper part of the pistils fall off, but the calyx remains even upon the ripe fruit.

Of a quite similar origin to the apple are the pear and quince. The fruit of the apple, pear and quince is therefore a swollen stem or axis enclosing the base of the pistil, thus differing widely from the fruits previously considered.

Currants, huckleberries, gooseberries cranberries, pumpkins, squashes, melons and bananas have a similar origin to the apple; for in the flower, their pistil-base is fused with the cup of the stem, and as the fruit develops both stem-cup and pistil-base enlarge together. There is, however, this difference between the fruits last named and those of the apple, pear and quince; in the latter group the edible part is all or nearly all stem; while in the former group, the stem part is but a thin covering over the outside, the edible part being mostly pistil.

The flowers of the blackberry and raspberry have, as shown in Fig. 1525, a single circle of calyx leaves, a single circle of corolla leaves, but several circles of stamens and pistils. By looking at B, Fig. 1525, it will be seen that the calyx, corolla and stamens, just as in the cherry and apple, arise from the rim of a stem-cup, a deep cup in the cherry and a shallow cup in the black-

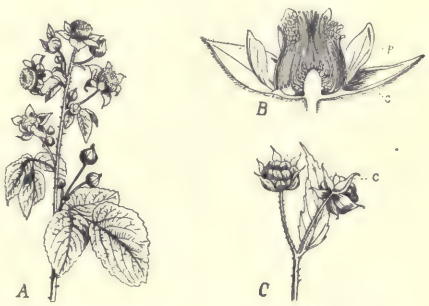

FIG. 1525.—EUROPEAN WILD BLACKBERRY. (Rubus fruticosus). A, a flowering branch; B, flower in longitudinal sections; C, branch with fruit; *p* corolla and *c* calyx.

berry. This cup in the raspberry and blackberry has rising from its bottom a solid dome, on whose sides the pistils are arranged. This dome is a part of the stem.

The flower of the strawberry is in every way quite similar to that of the

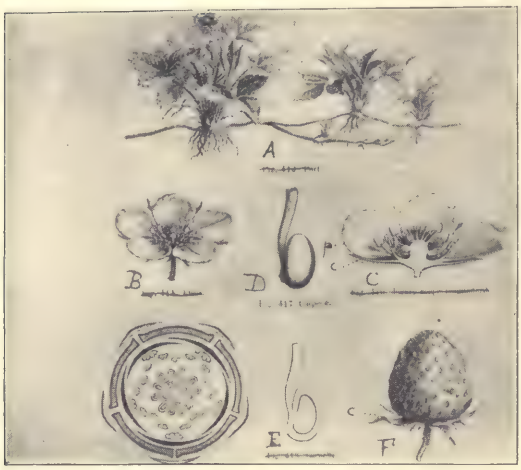

FIG. 1526.—STRAWBERRY. (Fragaria vesca). A, complete plant; B, flower; C, flower in longitudinal section; D, pistil; E, pistil in longitudinal section: F, fruit; *p* corolla and *c* calyx.

blackberry, as will be seen by reference to Fig. 1526, *B* and *C*.

The last four groups of figures examined, those of the cherry, apple, blackberry and strawberry, illustrate members of one plant family—the rose family or Rosaceæ. Since this family furnishes us in this region with the most of our tree and bush fruits, it may be worth while just here to take a comparative view of the flowers of its members, as illustrated in Fig. 1527. It will be noted that in all these six flowers the calyx, corolla and stamens are borne on the rim of a cup. The manner of arrangement of the pistils is what chiefly distinguishes the flowers from one another. At *C* we have the type of the cherry flower, with a single pistil in the bottom of the cup; at *D* is the same relation, except that there are several pistils instead of one; at *E*, which is the type of the rose flower, the pistils are borne on the sides as well as on bottom of the cup; at *F*, the apple flower, the base of the pistils are fused with the cup; while at *A* and *B*, types of the strawberry and blackberry, the pistils grow from a dome rising from the bottom of the cup.

Returning to a consideration of the fruit of the blackberry and the strawberry, we find that although the flowers are so nearly alike, the edible parts of the fruit are much unlike. The pistils in the blackberry become thick-walled, just as the single one does in the cherry, and these fleshy pistils give us the appearance shown in Fig. 1525, *C*, and Fig. 1528, *B*, the calyx of the flower still showing beneath the fruit. In the strawberry on the other hand, the pistils do not become fleshy; they remain small and become dry and hard, while the domed axis from which they grow swells enormously, furnishing thus the edible part. Therefore the blackberry is composed mostly of succulent pistils attached to a small central stem or core, while the strawberry is composed mostly of the enlarged central stem, in whose surface are borne the dry pistils.

Fig. 1528 shows a series of three ber-

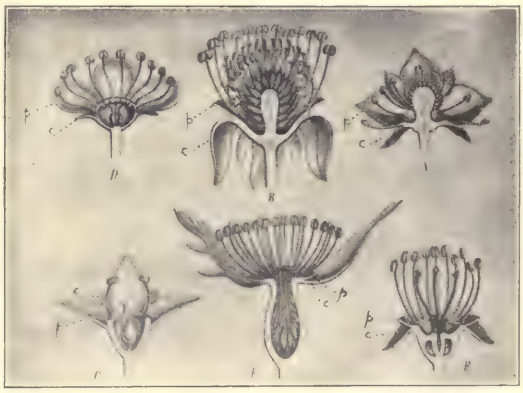

FIG. 1527.—Comparative view of flowers of the Rose Family A, Marsh Five Finger (Potentilla palustris); B, Avens (Geum urbanum); C, Lady's Mantle (Alchemilla alpina); D, Meadow-Sweet (Spiræa decumbens); E, Dog Rose (Rosa canina); F, Apple (Pirus malus). *c* calyx and *p* corolla.

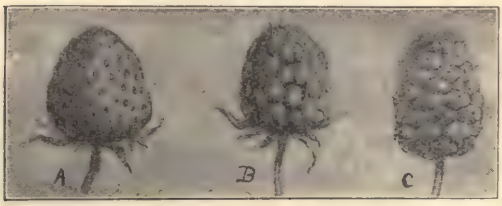

FIG. 1528.—Comparative few of fruits. A, Strawberry; B, Raspberry; C, Mulberry.

ries—strawberry, raspberry and mulberry. The mulberry, to a superficial observer, may look not unlike the raspberry or the blackberry. We see, however, that each little fruit in a raspberry or blackberry is tipped with a single thread—the remains of the upper part of the pistil; but each little fruit in the mulberry is tipped with more than one thread, and there are lines crossing the fruitlet. If we cut longitudinal sections of these berries, we shall have before us such appearances as are shown in Fig. 1529. From these figures and from a study of the development of the fruits, it can be seen that the fruit of the strawberry is a fleshy stem or axis with the small dry pistils in its surface; the fruit of the blackberry is composed of many fleshy pistils attached to a slightly fleshy axis; the fruit of the raspberry, as ready for market, is like that of the blackberry except that the pistils of which it is composed are separated from the central axis; while the fruit of the mulberry consists of a whole branch, all parts of the flowers of which have developed over into fruit. Each little fruit in a mulberry has a central part which is the pistil containing seeds, and enveloping this pistil are four fleshy calyx-lobes. Each little fruit is attached by a short stem to the central larger stem; so that the mulberry is made from a whole group of female flowers including the stems of these flowers. The mulberry is therefore the same kind of fruit as a naked ear of corn. In the ear of corn, however, the pistils are not united with the calyx as in the mulberry.

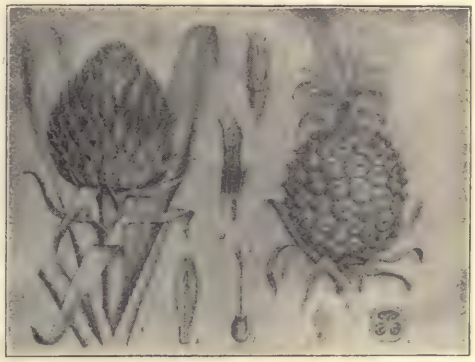

FIG 1530. PINE APPLE. (Ananas sativus). A, head of flowers; B, head of fruit; C, single flower, showing calyx and corolla; D, flower in longitudinal section; E, petal and stamen; F, pistil and calyx.

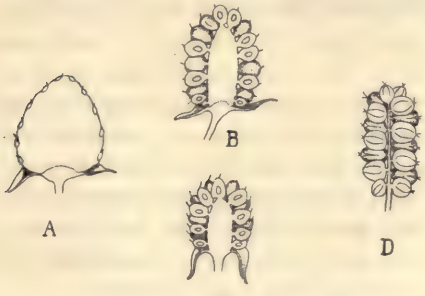

FIG. 1529.—View of fruits in section. A, Strawberry; B, Blackberry; C, Raspberry; D, Mulberry. Dotted line in A and B show where the fruit separates from the axis.

In the pine apple, Fig. 1530, the flowers are grouped in a head as in the flowers of the red clover. There is a central stem from which the flowers branch off as in the mulberry, but in the pine apple, in addition to the various parts of the flower, there are leaves interspersed, a leaf just below each flower. When the pine apple ripens, all parts become fleshy and fuse together, pistils, stamens, corollas, calyxes, leaves and plant stem, all uniting to make this delicious fruit.

FIG. 1531.—(Ficus carica). A, flowering branch; B, female flower; C, male flower; D, mature in longitudinal section.

In the last fruit to be dealt with here, the fig, we have the same parts present as in the pine apple, only their arrangement is different. In the fig, the plant stem instead of being solid, giving off flowers outwardly as in the pine apple and the mulberry, is urnshaped, giving off flowers inwardly, as seen in Fig. 1531 *D* The urn of the fig is outwardly nearly like that of the rose, Fig. 1527 *E*; but the urn of the rose gives off only pistils, while that of the fig gives off flowers and rudimentary leaves.

Thus it is seen that fruits arise from the development of various parts present in the flower; that the parts of the flower all arise as little tongue-like out-growths from a plant stem; that in the ripe fruits, we have in the grape, cherry, plum and peach only the pistil of the flower; in the apple, pear, quince and others, the pistil with a thick stem part outside; in the raspberry, a hollow dome composed of many pistils; in the blackberry, a central stem bearing many succulent pistils; in the strawberry, a succulent stem bearing dry pistils; in the mulberry, a thin central stem bearing many lateral flowers, all of whose parts become succulent and remain in the fruit; in the pine apple and fig, a complex of pistils, stamens, corollas, calyxes, leaves, and stems.

NEATER PACKAGES FOR FRUIT.

There is a needed tendency toward smaller and neater packages for fruits. In addition to getting nearer the wants of the consumer, the fruits are not subject to the injury they are exposed to in large packages, where the ripe are crushed by the greener ones. A light attractive package helps to no small extent in the sale of the contents. The cost of the packages is no longer a big expense. The decline has kept pace with the decline in values of fruit, and new and improved machinery insures still lower prices for many of the packages necessary.

Conceding that the grower has done his duty so far in raising, picking and packing the fruit, the next step is the best market, and last, but not least, the firm selected to ship to. The alluring and neatly worded circulars have led many shippers astray. Big figures, too, often prove a bait that many cannot resist. Every big market has plenty of firms who are entirely satisfied with their legitimate commissions, to whom the grower can ship without assuming any risk. Beware of the big, windy circulars that promise everything, and the firms that send them out.—Proceedings of American Pomological Society.

PALM CULTURE IN OUR HOMES.

Read by Mr. J. O. McCulloch, at the December Meeting of the Hamilton Horticultural Society.

IN this paper "Palm Culture in Our Homes," I can only give an account of the method pursued by myself. It may not be the best method, but it has resulted in some fairly good plants, and there is no doubt that any one, with the exercise of a little care and patience, can produce fine specimens of this most graceful and beautiful class in our ordinary living rooms; and I hope, that those who have succeeded, perhaps by some different method, will give us the benefit of their experience.

It is unfortunate that many have been deterred from attempting to grow palms, by the somewhat widespread notion, that they will not do well in the house. This is a mistake, as there are few plants that will give as much satisfaction, with ordinary care as some varieties of the palm. They will grow and thrive where any blooming plant would prove a disappointment, because they do not require the sunlight which most other plants must have.

FIG. 1532.—PHŒNIX RECLINATA.

Palm culture, like everything else, must start by procuring the palm. Any florist can supply you, but it is not so easy to say with what variety to begin. If I were advising anyone to make a start, it would be with *Phœnix Reclinata* or *Phœnix Rupicola*. These two will stand almost anything, high temperature, low temperature, fluctuating temperature, coal gas (the less of it however the

better), and even drying out until the leaves droop, and still maintain an appearance of which no one need be ashamed. Next in order would come the *Kentias*, *Balmoreana*, *Forsteriana*, and *Canterburyana*, then *Latania Borbonica* and *Seaforthia Elegans*, followed after a little experience, by *Areca Lutescens* and *Cocos Weddeliana*; these last two are very graceful, the Cocos perhaps being the finest of all for table symmetry so necessary in a palm. However, having possessed yourself of a plant grown in a high temperature, is no reason for discouragement, as each succeeding leaf, after the first one grown outside the greenhouse, will come on a little longer stem, and the plant in time resume its graceful shape. When buying, be sure your plants are well rooted, have them turned out of the pots and see that the tips of the roots are white

FIG. 1533.—PHŒNIX RUPICOLA.

decoration. And now a word about buying the plant, content yourself with something of rather a small size to start with and try and get a plant that has been grown in a cool temperature. If you get a plant that has been grown in a high temperature, the next few leaves it puts out, after having been removed from the greenhouse, will come with shorter stems than those already on the plant, thus destroying the or pink, and that there is a goodly number of them. A well rooted, cool grown palm may be safely removed from the greenhouse to our living rooms at any season of the year.

The first requisite of house culture is regular attention. Other plants may be injured by neglect and quickly recover, not so with the palm. The damage done by one weeks neglect may require a couple of years to repair. By

regular attention, I do not mean watering or for that matter doing anything else at stated intervals, except looking your plants over at least once a day, to see what attention they need. There can be no stated time for watering plants. The temperature of the rooms may be higher one day than another, and easy as it is, it has proved a greater stumbling block than anything else. Constant soaking with water has ruined many palms, and drying out has probably ruined as many more. When you water do it thoroughly, using tepid water if it is handy, and then watch your plant until it shows signs of becoming dry,

FIG. 1534.—KENTIA FORSTERIANA.

there may be more sunlight, the air may be drier; in fact, there are a variety of causes, not easily traced, which make it possible for a plant to require water twice in two days at the beginning of a week, and once in two days at the end of it. To be able to determine whether a palm needs water or not, is perhaps the most essential thing in palm culture, before watering again. You can tell this by the appearance of the earth in the pot, by the feel of it, or perhaps best of all, by the sound produced by rapping the pot with the knuckles. To become familiar with this last method, take a pot filled with earth and let it become dry; rap it sharply with the knuckles and note the sound, then water

it, and rap again noting the difference. Have a pot that was watered the day before, rap it and you will have still another note. With a little practice you will be able to tell by this simple method whether a plant needs water or not. The only rule to be laid down is, never allow the earth to become dry enough to powder between the thumb and finger, and never keep it soaking wet. One of the best methods of watering is to place the plant in a pail or tub of water, where the water is deeper than the pot, and allow it to stand until the air bubbles cease to come to the surface ; then, in taking the pot out, drain the water from the top of the pot so that as little water as possible will pass through the soil. The reason that this method is better than the one usually employed is, that the earth in drying shrinks away from the pot, and when the water is poured in at the top, it is very apt to find its way down the sides of the pot and out at the bottom, without having thoroughly penetrated the centre. You will also find that plants watered by this method do not dry so quickly, thus showing that the watering was more thoroughly done. And now I must sound a note of warning in regard to jardinieres, they are all very well in their place, and certainly improve the appearance of a handsome palm, but they were never intended to water palms in. When you water your plant, take it out of the jardiniere and allow it to drain before putting it back ; and it is perhaps as well, as a matter of precaution, to have an inch of beach gravel, or something of that nature, in the bottom of the jardiniere, and when you lift your plant out, drain out any water that may have accumulated.

The next matter of importance is washing the leaves. To keep a palm in good order, this must be done at least once a week and at a time when the plant needs water. Perhaps the easiest way is to stand the plant in a bath or tub and give the leaves a shower bath with the watering can, or fill up the bath and put the plant in so as to cover the leaves, if necessary, placing it on its side. Should you prefer to have the leaves cleaner than these methods will make them, rub them over with a damp sponge, rinsing it occasionally. There is no necessity to use castor oil or anything else of that nature to make the leaves glossy, if they are kept perfectly clean. Handle your palms carefully. The tip of the coming leaf in some varieties is very brittle, the slightest touch will break it as I have found out to my sorrow more times than one. If you should be so unfortunate as to break one, don't feel too bad about it as the injury is generally temporary, seldom effecting the leaf after opening.

With regard to temperature, a palm with proper watering will stand a higher or a lower temperature, than we would find comfortable in our living rooms. It is a mistake to suppose that they require an extra amount of heat. They will grow and thrive just as well in a lower temperature, say from 55 to 65°, and in the end make a better plant. A palm will stand, without injury, an occasional temperature of 45°, provided it has not been grown in a high temperature, but it is not of course advisable to subject the plant to such an extreme, if it can be avoided. As to light, give them a sunny window in winter if you can, but it is by no means a necessity ; many palms that are fine specimens have seen little or none of the winter sun. Be careful not to give a full exposure to sun in the late spring, or the result will probably be unsightly burnt leaves. If your house is heated by a

hot air furnace, be sure to keep the water pan filled, as much for the benefit of yourself as your plants, and avoid if possible coal gas, though palms stand even more of this than most plants. Should your house be lighted by gas, grow your palms in the room where least of it is used. Special ventilation I do not think is necessary, the air that is pure enough for us will be all the palm requires.

There is but one class of insects that are injurious to palms. These are generally known as scale, and you will have to learn to know them and keep a sharp look-out for them, otherwise, your efforts at palm culture will come to naught. They appear as little greyish or brownish scales on the leaves, and will, if left undisturbed, render the finest green leaf a sickly yellow. Should you have them in any quantity, take a tooth brush and water and scrub the leaves until the scale has fallen off. If however, your plant is free from these pests to start with, and you examine it occasionally, you will probably never find more than half a dozen or so, which may be removed with a little piece of stick, or anything else that comes handy. Never apply kerosene emulsion or anything else of that nature to your palms, it may kill the scale, but will certainly injure the plant.

FIG. 1535.—KENTIA CANTERBURYANA.

And now, we may consider the soil and method of potting. I have grown palms with some measure of success, in soils of widely varying nature; for instance, in rotted clay sod, then in leaf mould, and again in a mixture of the two, and I have found but one soil so far, in which they would not grow, and

that was, rotted sod and manure. The lesson to be learned from this is, avoid manure in any shape for palms. Whatever soil you use, make leaf mould the basis of it. All my palms but one or two, are growing in pure leaf mould, and the one or two are in leaf mould, with the addition of about twenty-five per cent. fine beach sand. This latter soil is the better of the two; but I think the substitution of light rotted sod for the sand, would be still better, provided, there was no manure mixed with the sod. In case, that any of you do not understand what is meant, by leaf mould, I may say, that it is simply thoroughly decomposed leaves, and can be found in any woods. Scrape away the rough leaves on top, and you will find your leaf mould from two to four inches in depth underneath. In using it, don't sift it, or throw out the fibrous parts, or little pieces of stick; let it all go into the potting soil. Another thing, don't take your leaf mould from a depression, where water might lie, select a spot that is well drained, otherwise your soil will be sour, in fact it would be better to throw the leaf mould in a little heap, in cellar or outhouse, and turn it over a couple of times, to make sure it is perfectly sweet before using.

In potting, the first thing to be considered is drainage, and this must be perfect. To attain this end, I know of nothing to equal the method described by our president, in his talk about bulbs; if you remember he covered the hole in the pot, with a piece of broken flower pot, then, put in half an inch of beach gravel, and over this, some moss or leaves torn to shreds. This is an improvement on any method I have used so far, and I intend to use it in future. Having provided the drainage, put in some soil, and then your plant, and remember one thing, pot tightly; take a flat stick and ram the soil down around the side of the pot, you will hardly get it too tight. Be sure the pots you use are perfectly clean, and use a pot an inch larger than the one the palm is already in. In some cases, it may be desirable to put the plant back in the same pot that it is growing in. To do this take the plant out of the pot and stand it in a pail of water, washing all the earth from the roots; then put it back in the pot and with the fingers, ram the new soil in between the roots until the pot is full. This is rather a delicate operation, and I would not advise any one to try it extensively without first experimenting, though it proved a success with me in the case of two plants last spring. The best time for an amateur to pot palms is in spring, probably the latter end of May, and one shift a year is plenty for all palms though some of them may not require potting as often; it all depends on how the plant is growing. Learn to turn a plant out of the pot without disturbing the soil, and keep track of the condition of the roots; in health, the tips should be light in color, if black and soft, something is wrong. The trouble may be, too much or too little water, the one, who waters the plant, is the only one, who can determine which. When turning out the plant, if you see a worm, take it out; but it is doubtful, whether they do any harm or not. Should you wish however to get rid of them, try watering with lime water or stick half a dozen matches in the pot, sulphur end down, and leave them there through two or three waterings, and the worms will come to the surface.

Palms will probably be the better for staying out of doors in warm weather. Certainly, they are more easily looked after, but they must not be fully exposed to either sun or wind; the sun

FIG. 1536.—PANDANUS UTILIS.

will burn, the wind thrash and split the leaves. The ideal spot is one with wall to the south and west; in such a position the plants get three or four hours sun in the morning, and are protected from the prevailing winds. Another good place, in summer, would be a sunny position, where they could be protected by cotton, stretched along the sides, and over the top of them. In this position, they would make a more rapid growth but would require very careful watching, the slightest drying out would result in injury. In summer, I have always watered my palms with the hose. There is no doubt, that tepid water would have been better, but the hose was so much the handier, that it outweighed all other considerations. Take your plants in when the nights get cool, and put them out during the day. You can give them all the sun they can get, at this time of year, without fear of injury; but beware of the wind.

In recommending varieties of palms, I have confined myself to personal experience, and there are no doubt many others of which I know nothing, that would do equally well in the house. There are also some other plants, which cannot be classed as palms, but which are of the same decorative nature. Chief among them stands Pandanus Utilis, the screw pine, which does well in the house; but should not be subjected to as low a temperature as palms will endure, and will come a much better color, if grown entirely in the shade. Pandanus Veitchii is a variegated form, green and white but seems to run to a solid light green and is not so desirable as the other. Ficus elastica, Cordyline indivisa, Araucaria excelsa and many greenhouse ferns, make fine decorative plants, and grow well in the house.

One word, in conclusion, to those among you, who may have bought palms, and seen them die or become so unsightly as to be an eyesore rather than an ornament. Don't be discouraged, and conclude, that palms will not grow in the house; rather try and find out wherein you have gone astray, and thus, get the benefit of the experience, that has cost you so dear. Remember one thing, look your plants over every day. It won't take but a moment or two, and you will be surprised to find, how their needs vary with the varying conditions surrounding them. That palms can be grown in ordinary living rooms as well as in greenhouses, I know to be a fact. I venture to state, that I can find many palms, that have not been in a greenhouse in years, that size for size, will hold their own with any plants grown under glass.

⁂ The Orchard and Fruit Garden ⁂

HOW TO MAKE FRUIT GROWING PAY.

HOW to make fruit growing pay seems to be the question of the hour. There has been so much failure during the three past years that there is universal discouragement, but the dawn of better days is near. The fact is that we must make a complete change in methods. We have been planting and growing fruit for our home markets; we have now completely stocked these markets and we imagine because Ontario is overstocked, the whole world is in the same condition. So far is this from being the case, that the very opposite is the truth. England, Germany and Belgium are all looking to Canada for their supply of fancy dessert apples. Only this season, some of our growers have received net returns from Hamburg of $3.50 per barrel, for Ontario apples, and the writer has received a net return of 50c. per 3rd bushel case for selected Baldwins and Spys. England is beginning to look to Canada for her fancy table pears. Our Bartletts, Boussocks, Clairgeaus, Anjous, Duchess, and even Kieffers have been making net returns of from one to two cents each according to size, and the demand is unlimited for the larger sizes and fine grades of pears, of high quality. The Kieffer is as yet new to the English market and for that reason has sold well both in '98 and '99 on account of its fine appearance. But we have reason to doubt whether it will continue salable. One firm in Edinburgh, for example, writes: "We find that persons buying Kieffers, do not want them a second time."

To *make fruit growing pay* in the changed conditions of the present day, we must revolutionize our methods completely. Once it would pay to grow small, soft apples, and even scabby and wormy apples, because our home markets were so hungry they would buy anything in the shape of fruit, and it cost so little to put it on the near markets that even natural fruits brought us a fair margin of profit. But now that our home markets are filled and we have to reach out to distant markets and compete with the finest fruits of California, and of Europe, and even of South Africa and Australia, the old slipshod methods will no longer do.

To begin with, we must *entirely cease growing inferior kinds;* they must all be either rooted out or top grafted. We must waste no more time or money over them, but at once grow varieties suited to our changed conditions. Just which special kinds these are must be to a large extent left to each man's judgment, because localities differ; but in general we must (1) *plant good shippers*—i.e., kinds that will carry long distances under favorable conditions. Now it has been proved that the Crawford peach, for example, the best variety we grow for our home markets, will not carry to foreign markets, even in cold storage. The Dwarf Champion and the Dwarf Aristocrat tomato will not carry; nearly every package of these varieties which we sent over in 1899, arrived in a rotten condition, and left the shippers in debt, while the Ignotum carried perfectly.

The next important thing is (2) to *select varieties that are worth shipping.*

It costs the same money to grow a poor variety as it does a good one. The packages and the freight are the same, and now that the costs of reaching distant markets have to be added, the high grade, fine size, well colored varieties are the only varieties that will pay. The variety should not only be a good shipper and of good appearance, but of the best quality. The Ben Davis apple and the Kieffer pear, for example, are lacking in this last particular, while almost faultless in the previous qualifications. It is hard to find all these points in any one fruit, but let us seek after them.

Then when the best varieties are chosen, (3) *only the best samples should be grown or shipped.* What is the use of allowing our trees to produce a lot of small peaches, or apples, and then find that one half the crop is worthless. We must stop growing such stuff. We must manure, prune, and thin in a scientific manner, just as a trained gardener in the old land does, with a view to producing only the finest grade. Michigan peach growers thin their peaches to eight inches, and say it pays them, even for a home market; how much more is it important for a foreign market. In our experience at Maplehurst thinned peach trees yielded about as much fruit as unthinned by increase of size, and when you count advanced price, it will always pay. Pears for export in 1898 were packed in cases 23¼ inches long, 11 inches wide and 5 inches deep, and graded extra A No. 1, A No. 1 and No. 1. Of the first grade, 60 pears, about 2¾ inches in diameter, filled a case. Of the second, 80 pears, 2½ inches in diameter; and of the third, 100 pears, 2¼ inches. We have not the full and complete returns yet, but in general we may say that the 1st grade Bartletts netted us $1 a box, the 2nd grade 75 cents, and the 3rd about 50 cents. Pears smaller than 2¼ inches were entirely unfit for export. Herein lies a lesson of great importance to the Canadian fruit grower which must not be despised, viz., that it will no longer pay to grow small-sized fruit of any variety for export, and that the grower must make up his mind to pull off all small, poor and mean specimens, and allow only the best to come to maturity. Over in Michigan, the growers are wide awake on this even for their home markets. They are asking the legislature to pass an Act forbidding any man from offering for sale poor trash of any kind of fruit, in order to bring about this very end. Must our Association ask this? will our growers have sense enough to stop growing second class stuff, and so make such action unnecessary in Ontario?

TO GET EARLY PEACHES.

J. H. Hale, the peach grower, gets ripe peaches two weeks earlier by the following method:

In the middle of the growing season put a strong wire around a large arm of a tree and twist it fairly tight. This checks the flow of sap and causes fruit buds to form early and in great number. The fruit on the branches of this arm will ripen two weeks earlier than that on the untreated branches and will be much more highly colored. But this part of the tree will be so weakened by the treatment that it should be cut away after fruiting that new shoots may come and take its place. Thus one large arm or limb of a tree may be forced each year.—Strawberry Culturist.

THE CLYDE STRAWBERRY.

ONE of the most difficult fruits to keep posted about is the strawberry. Forty years ago there were but two varieties much grown among us, viz.: Hovey and Early Scarlet; and when a little later, there appeared Wilson's Albany, and Crescent it was the beginning of a new era in strawberry growing. For a long time these two varieties held the supremacy as money makers, until by and by its competitors became legion, and among them some that excelled in size, and others in quality. The Bubach, for example, was for a time a leading variety on account of the lack in vigor of the plant.

Now the number of excellent varieties, many of them far superior to Wilson's Albany, numbers in the hundreds; so that the most fastidious strawberry lover may have his whims gratified; and among them such berries as Carrie, Saunders, Seaford, Nick Ohmer, Glen Mary, Mar-

FIG. 1537.—CLYDE STRAWBERRY.

garet, Wm. Belt, etc. Two years ago we saw the Clyde growing on the grounds of Mr. Stephenson, Guelph, and ever since we have been inclined to commend it as one of the best for general planting, on account of its uniform good size, and great productiveness. We therefore, read with some interest what Mr. E. W. Wooster says of it, in the December number of American Gardening, as follows :

That the Clyde is the most universally popular strawberry of to-day in America goes without saying. That it is deservingly so there can be no question, for although it has been pushed by its introducers, but not to that degree as is usual with most new introductions, most of which could not be compared with it in point of real value, by its own demonstrations wherever it has gone it has pushed itself most strongly to the front. Dr. Staymen is deserving of much credit for originating such a noble variety, the more so when we come to appreciate the fact that it was not over extolled by him ; neither, as fruiting with me for the first time last summer, have I found it over-praised by any introducer. In this respect it stands as a single exception to every other variety I have ever treated ; only a few others have I found equal to all that was claimed for them.

With the majority of fruit-growers I predict that this noble variety will have a short life of popularity, because they will fail to see the necessity of giving it that special culture which it demands in order that it may maintain its present high standard of excellence. The downfall of the Parker Earl among so many growers was, in my opinion, due almost wholly to this cause ; but among the most painstaking, carefully observing growers it is still one of the leaders.

CALLAS EFFECTIVELY POTTED.

FIG. 1538.—CALLAS WITH VARIEGATED GRASS.

A VERY successful arrangement of potted calla lilies is shown in the accompanying cut. A florist writing to The Country Gentleman says of it :

It was a large pot containing three strong callas, and in the center a plant of zebra grass (Eulalia japonica zebrina, var.). The soil was rich, and during the winter a top dressing of fine manure was given it, with plenty of water. The growth was magnificent, both of the callas and the grass, which gave the whole object a particularly pleasing effect that is but too poorly expressed by a picture.

Many flowers were borne and it continued in beauty till late in the spring, when it was planted in the garden and given a rest.

THE CULTIVATION AND CARE OF ORCHARDS.

SIR,—Now that affiliated societies are being organized in almost every town and village on the St. Lawrence, a few remarks and suggestions on the care of orchards for Eastern and Northern Ontario might be of interest to some. I speak more particularly of the apple orchard, as there is very little other fruit grown in this section. There is one thought ever present with the careful orchardist, what are we to do to get our trees in the best possible condition to withstand a temperature of from 25° to 30° below zero, for we all look for and rather expect such a temperature sometime during January or February, which may last from a few hours to several days.

Now such temperatures are very severe on root-cell, branch and fruit bud. First let us take into consideration the root. If we can encourage deep rooting, and thereby partly getting below the frost line, we may largely overcome the difficulty. Now, how are we to do this? First, what are the functions and duties of the root as regards the growing and life of a tree? Briefly stated, the duty of the roots are to gather certain elements in the soil, such as potash, phosphoric acid, introgen, etc., held in solution by the water of the soil, which water or solution is carried in the form of sap to the leaves of the tree, where they are combined with carbon, which the leaves absorb from the carbonic acid gas present in the air and then returns through the tree, forming new wood, roots and buds. Now to get the food elements suluble, we must get the air into the soil to cause nitrification, and how is this most thoroughly done?

First by underdraining then by careful and frequent tilling of the surface. By deep draining we cause nitrification to a greater depth and a warming up of the soil to a corrresponding depth and the roots will follow. Now by cultivating the surface frequently, keeping it soft and mellow, we cause more rapid nitrification near the surface, and when the rains come instead of running off the land it will be absorbed by it like a sponge taking up the food elements that have been freed by the air near the surface and carrying them in solution to the roots below.

If you take a sponge and fill it full of water, then place it on a piece of wire netting, and cover over thoroughly with thick cloths to prevent evaporation you will find it as damp at the end of a week or two as it would be when freshly squeezed out from the bath. Only a certain quantity, the surplus has drained away.

Under the above conditions we cause a rapid and succulent wood growth which, however, must be checked early enough in the season to allow for it to ripen. The most approved method and the one that has given me most satisfaction is to cease cultivation about July 20 to August 1st, and to sow at that time clover seed at the rate of about 20 lbs to the acre, which, besides being a valuable fertilizer, serves to draw the moisture of the soil, thereby checking the wood growth of the tree, and thus giving it a chance to ripen. A good crop of weeds is better than no crop at all, and here is a point that is of the utmost importance in this section. We must have a cover crop to catch the first snow and ice and protect the ground from the severe frosts that are apt to come before we have sufficient snow on exposed surfaces to keep the ground from freezing to a considerable depth.

In this section I cannot recommend the practice of the orchardists in Southern Ontario of plowing the orchards late in the fall, and leaving the exposed surface to the action of the frost; it has been followed by bad results here frequently.

To summarize—underdrain thoroughly, cultivate frequently until Aug. 1st. Then grow a cover crop of clover, rye, oats or buckwheat, etc., and allow it to lay on the surface through the winter, commencing cultivation again early in April or as soon as the ground can be worked.

HAROLD JANES.

Maitland, Ont.

Flower, Garden and Lawn.

A FEW EARLY FLOWERING PERENNIALS.

DURING the latter half of May our gardens are bright with spring flowering perennials, but in the early part of the month the bulbs, alone, usually furnish us with all the bloom we have at that time. But while crocuses, squills, snow-drops, tulips, hyacinths and daffodils, if properly arranged, make a fine display, there are a few other charming early flowering plants which should not be omitted from any garden. The following are six of the best of them.

Spreading Pasque Flower (Anemone patens). This beautiful perennial begins to bloom during the last week of April. It has large, deep, purple flowers which are very attractive and excellent for cutting.

Ox-eye (Adonis vernalis). Though only attaining a height of from six to nine inches, this pretty little plant is very desirable. The flowers are large and of a lemon yellow colour, and the foliage finely cut and graceful. It begins to bloom during the first week of May.

Iceland Poppy (Papaver nudicaule). This poppy begins to flower during the second week of May and there is a profusion of bloom until early summer, when it rests for a time beginning afresh in the autumn. The flowers are of several colours, yellow, orange and white being the most common; they make fine table decorations on account of their bright coloring.

Red barren-wort (Epimedium rubrum) A very graceful and beautiful little plant beginning to bloom during the second week of May. The flowers are small, bright crimson and white, borne in a loose panicle. The leaves of this plant are very pretty. There are several other species of this genus which are desirable. They are very ornamental as cut flowers.

Lovely Phlox (Phlox amoena). There are many species of early flowering phlox but this is one of the earliest and best. The flowers are bright pink in colour and the stems are long enough to make it a good flower for cutting. It begins to bloom during the second week of May.

Dwarf Jacob's ladder (Polemonium humile pulchellum). All the polemoniums yet tested here are pretty, and this is the earliest and one of the best. It is a profuse bloomer with violet blue flowers and small narrow leaves.

There are a few other early flowering perennials which are very desirable, such as the bleeding heart, tall leopard's, bane and trollius.

W. T. McCoun,

Horticulturist Central Experimental Farm, Ottawa.

IVY LEAVED GERANIUMS.

FIG. 1539.—NEW HYBRID GERANIUM, P. CROZY.

THE beautiful leaves and flowers of this section of the Pelargonium family, are the object of much admiration. The older varieties are all single-flowered and of rapid trailing habit. The later introductions tend to very large double or semi-double flowers and bushy habit, well suited for pot plants. All the varieties have, in a greater or less degree, the charming Ivy-shaped, spicy scented foliage, the thick waxy texture of which, would alone render this class well worthy of cultivation.

Pelargonium peltatum is the name of the species, two varieties of this were introduced in 1701. From these the variously hued and formed flowers have been raised. More than a decade since, Peter Henderson, disseminated his Jeanne d'Arc, double white, and James Vick, his Mme. Thibaut, giving an impetus to the culture of these plants in America, which is still evident. Ivy leaved geraniums flower most freely during the spring and summer, the trailing sorts are good, some plants for hanging baskets, rockeries and trellis, the dwarf varieties are better for pot plants, though any of them look well and do well trained to a trellis Souv. de Chas. Turner is probably the largest flowered sort; individual pips can be grown 2 inches across. La Foudre is a very bright double flowered scarlet, probably the brightest of the color. The predominating shades seem to be pink and magenta. Le Elegant is a very old variety, with a very fine trailing habit, leaves medium sized, green, edged heavily with pure white. Duke of Edinburgh is another variegated kind, leaves quite large, a more rapid grower.

Peter Crozy, the subject of the illustration, is a unique hybrid between the zonale and the ivy-leaved sections, color bright scarlet, it flowers very freely and is desirable in many ways.

WEBSTER BROS.

Hamilton.

Our Affiliated Societies.

FIG. 1540—D. W. KARN, PRESIDENT WOODSTOCK HORTICULTURAL SOCIETY.

WOODSTOCK.—The annual meeting of this Society was held in the Council Chamber, on Wednesday evening, at 7.30. There was a good attendance of members and much enthusiasm. Secretary-Treasurer Scarff's annual report was as follows :

RECEIPTS.

Balance from 1897	$71 70
Legislature grant	41 00
Members' subscriptions	98 00
Donations	19 40
Admission fees to exhibition	54 85
	$284 95

EXPENDITURE.

Rent of building, etc	$16 30
Canadian Horticulturist	97 00
Purchase of seeds and plants	76 17
Printing	16 08
Music	7 00
Postage	1 69
Balance on hand	70 71
	$284 95

The election of officers resulted in the election of D. W. Karn as President, G. R. Patullo, 1st Vice-President, and Mr. Scarff, Secretary-Treasurer. A letter was read from the Secretary of the Ontario Fruit Growers' Association, with kindly greetings; and also a set of by-laws for Affiliated Horticultural Societies, which were adopted.

OWEN SOUND.—The annual meeting of the Owen Sound Horticultural Society, was held in the Council Chamber, Owen Sound, on the evening of Wednesday, the 11th inst. President, the Venerable Archdeacon Mulholland presiding.

The minutes of the previous annual meeting being read, the President delivered an interesting and instructive address. The Directors report showed a membership of 57 for the preceding year; $45.60 being expended for Horticultural periodicals. Hyacinth bulbs were purchased and distributed among the members to the value of $22. The Association begins the year with a balance at its credit of $19.52. Two addresses were delivered during the year under the auspices of the Society. One by Mr. W. Baker, on "Indoor and Outdoor Plants," and one by Mr. Jenkins, Principal of the Collegiate Institute, on "The San Jose Scale," both were heartily enjoyed, but slimly attended. A letter was read from the Editor of the HORTICULTURIST in which many valuable suggestions were made, all of which were endorsed by the meeting. He also sent a draft copy of By-Laws which were adopted with slight changes. The election of officers for the current year was then proceeded with, resulting as follows: Ven. Archdeacon Mulholland, President; R. McKnight, 1st Vice-President.

An animated discussion then took place as to the best method of extending the usefulness of the Society, amongst other conclusions arrived at, it was decided to hold four public meetings during the course of the year, at which addresses are to be delivered by some member of the Society. Two of these meetings were provided for, Dr. Cameron and Mr. McKnight being secured to address them

At a meeting of the Board of Directors subsequently held, Treasurer Peckham was re-elected, and the services of D. R. Dobie were secured as Secretary. The Society begins the year with a list of 53 paid up members.

BROCKVILLE.—This Society was organized on the 11th ult., with about 100 members in affiliation with the Ontario Fruit Growers' Association. The President is Mr. Samuel Reynolds, and Mr. Geo. A. McMullen, Sec.-Treasurer. The by-laws submitted by our Committee was adopted with a few small amendments. As the President remarked in his closing address, "It is to be hoped that all lovers of flowers and plants will join the Society and reap the benefits accruing therefrom. By the payment of one dollar per annum, a member is entitled to full membership privileges, which includes free admission to all meetings, exhibitions, etc., the selection from a choice list of rare and hardy fruit trees, shrubs, creepers and flower plants."

The membership will include the whole of the county of Leeds, and the officers trust they will be loyally supported by all parties interested in gardening and orchards, or window gardening. In addition to the benefits referred to, every member will receive a free copy of the Canadian Horticulturist Magazine for one year.

NIAGARA FALLS.—At the Annual Meeting Mr. W. R. Lyon was elected President; Thos. J. Robertson, Secretary. The plants to be distributed this year are Rudbeckia, Golden Glow, Hardy phlox, Eulalia Zebrina, Deutzia Crevata, Weigela rosea, and one packet each of hardy Larkspur and Canterbury bells.

LINDSAY.—Our Annual Meeting was small, so many other meetings the same evening. We elected Mr. Alex. Carters, President; and Mr. F. J. Frampton, Secretary. We adopted the by-laws with some amendments.

COBOURG.—Among the officers elected at our annual meeting were Mr. J. D. Hayden, president, and Major H. J. Snelgrove, Secretary.

During 1898 the members of the society was increased from 86 to 91. There is a balance of $25 in the Treasurer's hands.

Last year the directors distributed among the resident members a large quantity of rare plants, shrubs, trees, bulbs, etc., including cannas, roses, honey-suckles, hollyhocks, anemones, deutzias, forsythias, lilacs, spiræas, rudbeckias, irises, ivies, clematis, bigonias, pæonies, asters, carnations, narcissi, hyacinths, tulips, currants, plums, raspberries, etc., comprising a valuable acquisition to Cobourg's beautiful gardens. Under the practical direction of Mr. Baker, a number of choice new vegetable seeds were also introduced.

Besides receiving THE HORTICULTURIST, a monthly magazine devoted to fruit, flowers and forestry, and the useful report of the Ontario Fruit Grower's Association, the members of the society will have the privilege of hearing lectures by noted florists from time to time. Mr. Webster of Hamilton, has been invited to address the society on "roses" at an early date, which will be a rich treat for all lover of the queen of flowers.

THE GRIMSBY SOCIETY elected Messrs. E. J. Palmer, president, and W. H. Read, secretary-treasurer. A resolution was passed to hold three monthly meetings, the 2nd Monday in February, March and April. At the first, a paper will be read on the Carnation by Mr. A. Cole, 2nd vice-president. The by-laws, as suggested by the Fruit Growers' Association was adopted.

At a meeting of the directors held later, it was decided to send out the following fine list of plants to each member, viz: Hypericum, Carnation, Lilium auratum, Dracœna, Datura, Dahlia, Salvia, English violet, specific kinds to be selected later.

WATERLOO.—The directors congratulated the society on the continued prosperity, the members having increased to 167 during the past year, each of whom received the CANADIAN HORTICULTURIST, and a bound copy of the Annual Report. In addition there has been distributed 72 plum trees, 114 cherry trees, 102 spruce trees, 352 house plants, 15 peonies, 87 Crimson Ramblers, 16 Gault raspberries, 3 black currant bushes, 54 Wickson plum trees, and 2,004 Hyacinth bulbs. The financial report was as follows:

RECEIPTS.

Balance on hand	$ 42 89
Legislative Grant	140 00
Membership Subscriptions	167 00
Miscellaneous Minor Receipts	20 55
	$370 14

EXPENDITURES.

Horticultural Periodicals	$133 60
Trees and Plants	164 88
Miscellaneous	24 22
	$322 70
Balance on hand	$47 74

At the election Mr. A. Weidenhammer was made president, and Mr. J. H. Winkler, secretary. A resolution was passed, authorizing the directors to purchase $15 worth of flower bulbs in the fall, and distribute them between the Central and the separate school children, with the object of cultivating a taste for flowers among the children.

BRAMPTON.—At the Annual Meeting, Mr. A. Barber was elected President, and Mr. Henry Roberts, Secretary-Treasurer.

DURHAM.—The Annual Meeting of Durham Horticulturist Society was held in the Public Reading-Room, on the evening of the 11th inst. Reports were read, the Directors' Annual by the Secretary; the Auditors' by the Treasurer. These on motions were adopted.

A communication from the Secretary of the Ontario Fruit Growers' Association, containing By-Laws for adoption by Affiliated Societies was, as requested, read and relegated to a future meeting of Directors for consideration.

The election of officers for the current year then was proceeded with:—C. Firth, President; G. McKechnie, Vice-President. Business being completed an adjournment took place. The Directors met then and John Kelly was elected Treasurer, and Wm. Gorsline, Secretary. After routine business, passing accounts, etc., Directors' meeting adjourned at the call of the President.

The Directors' Annual Report for 1898 was as follows:—

Ladies and Gentlemen,—We wish you the compliments of the season, and are pleased to report that our efforts during the past year for the attainment of the objects of our organization, the diffusion of horticultural knowledge and the distribution of nursery stock, plants, bulbs, etc., has been appreciated and attended with a fair measure of success. Many of our members purchased and had delivered to them, free of charge, those things at cost prices, which were so low as to be to them a revelation—a complete surprise.

An exhibition of house plants and cut flowers was held in the beginning of September. The great heat and long continued drought of summer gave these such a forlorn aspect generally, that a selection for show purposes were somewhat of a difficult and critical task. Members and others kindly permitted us to select such as we chose, and these, when collected carefully and judiciously and artistically massed on a raised platform in the centre of the Town Hall, most pleasantly surprised the many visitors.

From the province and county liberal grants were received during the year, which enabled us to deal generously with our members, to each of whom we gave premiums costing 83c. The Ontario Fruit Growers' Association supplemented this by a free distribution for experimental purposes of trees, plants, etc., giving one or more to each person.

Through the Society during the year, members obtained flowering shrubs—rose bushes and peonies; small fruit bushes—black currant, gooseberry and raspberry, 780; fruit trees—apple, pear, cherry, plum and peach, 108; strawberry plants, 50; house plants—palms and chrysanthemums, 39; bulbs and tubers—gladioli, calla, hyacinth, tulip, lily, narcissus, daffodil, tuberous rooted begonia, and canna, 4600; papers of seeds—flower and vegetable, 475. Of these 6186 articles, the Ontario Fruit Growers' Association supplied 113, the Society gave 3213 as premiums, and members purchased, through the Secretary, 2860.

CHRIS. FIRTH, *President.* WM. GORSLINE, *Secretary.*

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

IN RETURN.

To THE CANADIAN HORTICULTURIST in reply to its New Year's greeting in its new dress, to its 5000 subscribers

Your subscribers (thousands five)
In return wish *you*
Joy and gladness o'er your live,
Lustrous, garments new;
Which are in perfect keeping with
Your intellectual power and pith.

The same five thousand also wish
Your Editor in-chief,
Long life and every luscious dish
That can convey relief
To one who in our time of need
Has been a patriot indeed.

WM. MURRAY.

"*Athol Bank*," *Hamilton, Jan. 1899*

Notes and Comments.

NEW CREATIONS IN FRUITS IN FLOWERS, supplement for 1899 from Luther Burbank, Santa Rosa, California, contains notices of several new fruits of interest. Among them we notice the *Climax* plum, the best selection from a number of hybrids of Simoni and Botan. The originator claims that it is "as productive as Burbank, about four or five times as large, two or three weeks earlier, and very much more richly colored." Another new plum is *The Sultan*, a cross between Wickson and Satsuma, over two inches in diameter and round, excellent sub-acid. Ripens a week before Burbank; a great keeper.

The Bartlett is another, unfortunately named we think—but so called because in quality, flavor and fragrance, it so resembles that pear. A cross between Simoni and Delaware.

A new quince, *the Pineapple*, is also offered, similar in appearance to the

orange, but much lighter yellow, and higher flavor. Said to cook tender in five minutes.

MR. HAROLD JONES of Maitland, sends us for this number the first of a series of articles adapted for fruit growers north of the St. Lawrence river. The first is on the *Cultivation and Care of Orchards*, to be followed by articles on Fertilizing, Trimming, Harvesting, Grading, etc.

STRAWBERRY PLANTS for new plantations should be well chosen. Only those formed by runners should be used, and of these the first formed are the best. It is injurious to a bearing plantation to allow the plants to run freely, because the last formed will produce little fruit, and cause the variety to "run out." The very best plants are those first formed on a young plantation in its first year.

THE HARLEQUIN BUG.—Prof. Johnson, of Maryland, says that this insect which is so destructive to turnips, radishes, cabbage or mustard, is very difficult to kill, as it does not eat the foliage but simply sucks the juices. The insect has a particular fondness for mustard, which is planted as a trap crop, and the insects are afterwards destroyed by strong kerosene wash. He suggests the use of kale as a still better trap, because it can be planted in the fall, and being already in leaf in early spring will catch the early appearing insect.

A FASHIONABLE FLOWER.—A fine, new carnation has been raised by George Nicholson, Framington, Mass. It is a beautiful pink color, and is named Mrs. E. N. Lawson, after a Boston woman. The papers state that there was considerable competition among florists for the purchase of this variety, one of them a Bostonian having offered $5,000, and a Chicago man $6,000. We should not advise the owner to hesitate long over such offers.

SPRAYING FOR FUNGI is seldom as it should be, and, when failure results, the first grower declares it a useless waste of time and money. Usually the lazy method is followed, of riding about the orchard and squirting a light spray on the outside leaves in passing; this is a most superficial method to be sure. The thorough method, and the only paying method, is to have the nozzles carried under the trees, or elevated on poles among the branches, by a man walking, who sees to it that every leaf and every branch is covered with the mixture, and this at least three or four times in the season.

IF THE GRAPE PRUNING was left unfinished in the fall, we would advise that the work proceed in mild weather. With Concords and such vigorous growers, almost all the young growth needs removing, to about two buds from the main arm. With slower growers like Wilder we would advise the cutting back every other shoot at two years of age.

CRUDE PETROLEUM is recommended as an insecticide by Prof. J. B. Smith, in Entomological News. Kerosene was too strong to be safely applied, but all experiments with the Crude Petroleum had been successful, without doing any injury. He had first tried on pear tree affected with San José Scale, painting every part; then a dozen similar trees, then entire orchard of Ben Davis apple trees was sprayed with Crude oil, and all these experiments were successful in killing the insects without injuring the tree. The Ben Davis apple trees were

sprayed April 14 to 22, and in the following September were fully loaded with fruit.

POMPON CHRYSANTHEMUMS. — We notice American Gardening speaks favorable of this class for amateur cultivation. For some time this old group has been somewhat neglected, owing to the more showy and popular greenhouse monstrosities. But it appears that many are paying attention to Pompons, because of their ease of cultivation, and of their abundant bloom even under considerable neglect. The varieties mentioned in Gardening as worthy of a place in the amateur's garden are (1) Rose Trevenna; (2) La Sœur Melanie; (3) Emily Roeboltom, and (4) Jules Lagravere.

THE WORDEN SECKEL pear is figured in the January number of the American Nurseryman, as being considerably larger than the well-known Seckel. This new variety was originated by Sylvester Worden, of Oswego Co., N. Y., originator of the Worden grape. It is claimed for it that it is a first class dessert pear, of very beautiful appearance. The tree is said to be hardy and productive. We expect fruit of this pear at Maplehurst this coming season, and will then report farther.

NEW AFFILIATED SOCIETIES.—Seven new Societies have been formed this year in affiliation with us, viz.:—St. Catharines, Kemptville, Carleton Place, Arnprior, Millbrook, Cardinal, Brockville. This makes forty-two in all that have thus been formed during the past three years in connection with our Association, and so popular and successful are they, that they gain in numbers and interest year by year. The old fashioned societies are dying out, becoming every year involved in financial difficulties, and in time we doubt not nearly all the provincial horticultural Societies will become associated with us.

THE RUSSELL STAPLE PULLER, of which a sample has been sent us by Russell Hardware Company, Kansas City, Mo., is a fine handy tool combining staple puller, wire cutter, hammer, wire splicer, pincers, monkey wrench, etc. The firm would like some firm to take charge of it in Canada. It certainly would be a very convenient tool in keeping the wire trellesis in order in a vineyard.

WOODALL & Co., apple receivers, Liverpool, send us a review of the apple market to 31st Dec. They note the almost entire absence of Newtown Pippins, of which in the past there have always been a few fine samples, enough to satisfy the fancy trade, but this year they have been conspicuous by their absence. A few inferior to medium did come forward, but were a sorry representative of the well-known and much appreciated fruit, and not being what was wanted were ignored, although some few sold up to 35/ per barrel, which was very much beyond their value, and which buyers discovered too late and to their cost.

Californian Pippins, in boxes, have to some extent taken the place of Newtowns, and although of fine appearance, are not considered equal in flavor, so that when there is a good crop of the old favourite, it will not find that its position has been usurped.

NOVELTIES.—The Baldwin cherry is a new claimant for patronage, named after the introducer, Mr. S. J. Baldwin, Seneca, Kansas. A sweet and rich cherry of the Morello type.

Question Drawer.

Ornithogalum.

Reply to Question 1041, by W. E. Saunders, London, Ont.

Ornithogalum Arabicum may be forced in the house for winter bloom by the same treatment as that given to the hyacinth. It requires a longer season of active growth, and the flower is fully six weeks later than that of the hyacinth, but ordinarily good treatment should suffice. I have not always been successful with it, and think that possibly it may be injured by delay in planting. Good bulbs, planted early, have usually succeeded. It is a striking plant in bloom, the black centre of the flower giving it an unusual appearance; but the pot needs to stand on the floor, as the flower stem is about two feet long beneath the umbel.

Reply by Mr. E. A. Bog, Secretary Cambellford Horticultural Society.

SIR,—In answer to Mr. Dickson's enquiry No. 1041, I may say that I have forced the Ornithogalum Arabicum with great success. My treatment is as follows: "Pot the bulb in a 4 or 5 inch pot, first week in October. Bury the pot in the garden with about a foot of soil over it, leave it there until end of November; then bring it into the house and put it in a hot, sunny window, give plenty of water, plant food twice a week; will bloom in February or March. I had three magnificent specimens last winter, which were the admiration of everyone who saw them. The bulbs I had were imported *direct* from Holland. My object in burying the pot in the garden is that the top grows very quickly, before the roots start; burying it prevents injury to the top and does not grow so quickly.

Apples for Profit.

1042. SIR,—As I am thinking of planting from eight to ten acres of winter apples, I would like your advice as to Ontario, Cranberry, Ben Davis and York Imperial, and a few others.

A. B., *Picton, Ont.*

Questions concerning the best varieties to plant in a certain section can only be answered in a general way, because those most desirable this year may be quite displaced by new varieties in a few years. There can be little said, however, against the varieties above mentioned. Ontario is a great favorite with those who grow it, as a commercial apple, because it is so clean, so uniform in size, so regular in bearing, and so well colored. Its chief fault seems to be over-bearing, which is inclined to weaken the vitality of the tree, and shorten its life.

The Cranberry Pippin is a favorite export apple with the writer, for on rich sandy and clay loam, the fruit is remarkably fine. It is larger and better colored than Ben Davis, carries well to a distant market, and yellows up about Christmas so as to set off its red stripes to the best advantage. But it is a very fastidious variety, if we may so speak of an apple, for unless soil and climatic conditions suit, it is apt to bear a good many blemished or wasty samples.

Ben Davis is reliable, and pays; and, until an apple of the same season, productiveness, and good appearance, but of better quality, appears, we are obliged to accept it in spite of its poor quality.

York Imperial has a high reputation, but has not been tested in Canada, so far as we know.

We would be inclined to add Blenheim and Wealthy to the list; for both

are superb apples; and we wish we could add *Spy* and *King*, but our experience in apple growing for thirty years past would condemn them both for planting, the former because it does not produce well until fifteen or twenty years planted, and the latter because it never bears paying quantities. Both are prime apples—the best in quality for general uses, but what is the use of quality if you cannot get enough of it to be worth handling? We have an orchard of Northern Spys, covering about six acres of ground. They have been planted twenty-five years, and have only given us two good crops! We have an orchard of Kings about thirty-five years planted, which have never given more than three good crops and several small crops.

Pears for Export.

1043. SIR, — I intend planting, next spring, a large number of pear trees, and have decided that for *export* varieties the Duchess d'Angouleme, Beurre Clairgeau, and Beurre d'Anjou, are as good as any.

The only question that undecides me is, whether they are sufficiently prolific, to pay as well as others. If planted, they will be in good strong clay soil, well drained, and will be carefully cultivated.

Now will some kind friend, who can speak from sweet or bitter experience, please let me know, through these columns, as soon as possible, if these varieties yield a good paying crop, under the treatment spoken of above?

Also, I would like to know, from an experienced man, whether Mountain Ash is a desirable stock on which to graft pears?

W. B. STEPHENS,
Owen Sound, Ont.

The experience thus far gained in exporting pears to the British market is so small and limited, covering only two years, and that chiefly from one section, and a limited number of varieties—that it is quite too soon to give a settled opinion regarding the best for the purpose. We have had excellent success exporting the Bartlett in cold storage, for when it arrives in good condition, it sells well. This last season we received from 50c. to $1.25 net for ⅓ bushel cases, or about $3.50 per bushel for the very finest—but they need great care in storage, or they will arrive rotten and be a bill of expense. We cannot therefore recommend this pear for general planting for export.

Fine DUCHESS pears always do well, if well grown. They usually do better as dwarfs than as standards, growing to a finer size. In the Grimsby section the Duchess orchards have not been bearing well for several years, we do not know why, for the tree has the character of being productive. If this variety does well in Simcoe county, it may be planted with confidence that a fine quality will bring a good price in the British market.

CLAIRGEAU is a fine-sized pear of beautiful appearance, and a good shipping kind. Well grown and well colored it is a variety of great excellence, and should do well for a distant market. It may be grown either as a dwarf or standard.

ANJOU is one of the finest, and no pear, that we sent over, brought prices equalling it. Some bushel cases sent over in 1897 sold for $3.75 each. In our experience at Grimsby, however, this variety is a poor bearer as a standard, and the fruit is not quite as large as on the dwarf. We have always grown it on sandy loam, and no doubt the standard would do better on clay, still in any case we would expect the best fruit on the dwarf.

The KIEFFER should also be planted to a limited extent, because it is sure to *succeed.* It will grow anywhere, and produce tremendous crops. With good cultivation and manure, and thinning, it will yield fine-sized fruit. This pear ripens for use in December and January, and will carry any distance in perfect condition. The only question is its quality, which is very poor for dessert. For canning it is unexcelled. However, should the time come when it is not in demand, no stock would be finer for top-grafting than the Kieffer.

Regarding the Mountain Ash for stock there is no doubt that it will answer, for it has been frequently used; but we would give the preference to a good seedling pear.

PACKING APPLES FOR EXPORT, IN THE ORCHARD OF MR. PAY, ST. CATHARINES, ONT.

THE
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PACKING APPLES FOR EXPORT.

EVERY year it becomes more evident that for the best success in fruit growing for profit, the aim must be to adapt our work to the foreign demands, rather than to our own markets; at least in the case of such fruits as can be exported. Canada can no longer find use for the apples, pears or grapes she produces; and some seasons is even overstocked with plums and peaches. And now that it has been proved that the first two can be exported, we hope for success with the others also.

In apples, the Baldwin and the Northern Spy have always been the leading varieties for export from Ontario and truly it is difficult to choose two others among all the hundreds of new apples, which can displace them.

Uniformity of packing is the great want of the present day, and were it possible to secure this end by means of legislation, we would urge such legislation. What is there for example, to prevent the present inspection Act to be so changed as to require that Grade 1 for apples, should mean apples about 2½ inches in diameter, in addition to the present requirements of that grade, such as freedom from worm holes, bruises, and other blemishes; and that Grade A 1 should mean apples about 3 inches in diameter, of good color and form, in addition to above points. Here then would be the grades exactly defined, and they would form the basis of agreement in selling to a distant buyer. As it now is we have no uniformity in size, and one man's No. 1 may be no larger than another man's No. 2, and the grading marks are meaningless.

We would go further than simply to establish grades and sizes: we would have it made a misdemeanor to put the stamp Grade A 1 upon a grade 1 or a grade 2 package of fruit, and make the shipper or seller of such false package liable to a fine, or confiscation of goods.

We would go further still, and have an inspector appointed, whose duty it

would be to examine such packages as seemed proper, and impose fines upon any one offering for sale or shipping to market falsely packed goods.

The frontispiece to this article represents the packing of apples for export in the orchard of Mr. Albert Pay, an enthusiastic apple grower, at St. Catharines. In a letter recently received from him, he gives some interesting details which we here insert in full :

FIG. 1541.—HARVESTING APPLES IN MR. PAY'S ORCHARD

"The photos sent you are from the orchard which was picked out by the Fruit Growers of this section, at a meeting called by Mr. A. H. Petitt, three years ago, to select an orchard for experimenting on with spraying. These experiments have now been carried on for three years, the last two years under the superintendence of Mr. Wm. Orr. The same row of trees have been sprayed each year, and with very beneficial results. Six applications were used on the one row and none on the row next and the difference was very marked ; in fact you could not find last year a perfect apple on the unsprayed, while on the sprayed row ninety per cent. were good clean fruit and not a wormy apple. I picked eleven barrels off two Baldwin trees and only one barrel off the two unsprayed Baldwins, next to them. There are Russets, Greenings, Baldwins and Spys in the sprayed row, and I have had three good crops in succession off them all, except the Baldwins which have had two crops in the three years. There are 400 trees in the orchard nearly all Baldwins, Greenings and Spys ; I have sprayed all the orchard three times each year, but I find it did not stop all the scab, and now believe it would have paid me well to have put on three more applications. I had as fine a lot of fruit

last year as there was any where in this section. It took 55 barrels of mixture to go over it all. In sorting and packing I make three grades, No. 1, No. 2, and peelers which I sold to the factory. I brand them with a circle brand, having a Maple leaf in the centre and the words Canadian apples, packed by Albert Pay, St. Catharines, Ontario. This is used on the No. 1. The No. 2 are all marked seconds. Last year I used on the face of each barrel a heavy white pulp paper, with an edge turned up about 1½ inches, which just fitted the head of the barrel, and on opening the barrel the apples were covered, on removing the paper the face of the barrel showed a bright clean appearance on the No. 1. I cut all stems off the face row and face with a double row. I have never used any other package than barrels. I usually get my barrels early in summer and store them till wanted and then they are thoroughly dry and I endeavour to keep them that way until shipped as I think a good dry barrel will help to absorb the sweat from the fruit. For packing I use a screw press, and the baskets are round, with a board bottom, with a hinge on one side and a string or cord on the other, which is hooked to the top rim; the basket cord loosened and the basket gently lifted up, when the fruit goes out of the bottom. This, I think, saves a great deal of bruising. I believe thorough shaking on a good solid floor or plank, after each basket or two is put in, is better than pressing so much on the top. I have shipped every year, for a number of years, to some private customers in England and Scotland and all the re-

FIG. 1542.—"THE GABLES," Home of Mr. Jno. Stewart Carstairs, Iroquois.

ports were, that they arrived in perfect condition. I have also shipped to some commission houses in Glasgow, London and Liverpool, but these shipments, after slacks, wet, very wet, samples, and other various charges, have been paid, I am sorry to say have not done so well. I pick my apples and put them in barrels and they are all brought in under cover every night and the packing is all done inside. This leaves all cull stock in one place not scattered all over the orchard."

Mr. Pay certainly follows an excellent system in gathering and packing his apples. But in cases of very heavy crops it is a great undertaking to carry all the apples to a packing house; and we have taken out our packing table into the orchard where the trees are heaviest laden, and had the pickers empty their baskets upon it. One man with one or two assistants will in this way pack forty or fifty baskets a day, keeping four or five pickers busy. We give a cut of our packing table, which holds about two barrels of apples, and is so inclined toward the opening that the fruit rolls toward the packer, and this much facilitates his work.

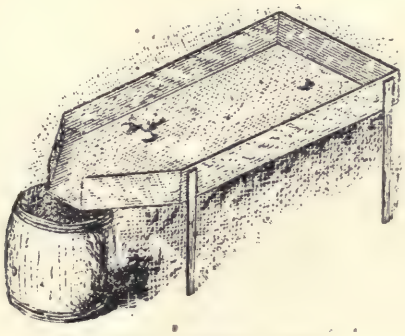

FIG. 1543.—PACKING TABLE.

AN EXPERIMENT WITH RASPBERRIES.

A YEAR ago last spring I turned under a heavy sod and planted corn, keeping it thoroughly cultivated and not allowing a weed or any grass to grow. Last spring I cross-plowed the field, taking pains to turn every furrow over, not cutting and covering, as is so common among some people. Then I pulverized the ground with pulverizing harrow until it became suitable for gardening. Then with a marker made of hardwood, 4 x 4, sufficiently long to make two rows at a time, by bolting standards two feet long and four feet apart, I marked the field out one way. Then I began taking up my plants and setting them out in rows the other way, seven feet apart, using a line, and taking pains to have the rows straight both ways.

In setting out I used a spade, digging a hole sufficiently large so as to spread the roots out in their natural position, then filling in around the plant with fresh, mellow earth, packing it around the plant with the foot.

In taking up the plants, I selected good thrifty ones of the previous year's growth, and only took up a small quantity at a time, cutting them back to

within 4 to 6 inches from the ground, keeping the roots covered so that the sun and wind could not dry them out. I began stirring the ground with a fine tooth cultivator, cultivating them out both ways, and by so doing was able to keep them in such a condition that it was only necessary to hoe them twice during the season, while the plants made a growth of four feet in height, and although the season was unusually dry, there were only about five plants out of each thousand that died, and these I shall reset this spring.

In trimming raspberries, as well as blackberries, I always remove the old canes as soon as the crop is harvested, burning them as soon as they are removed, thereby leaving no brooding places for insects, and have always had the best success in cutting off the tops of the canes that are left to bear, during the month of March or the latter part of February, if the weather permits. I have also found it far more profitable to set a new patch each spring, thereby having a fine new patch coming into bearing each year. I plow up the ground and seed to clover, then turn the clover under as soon as it becomes suitable. By so doing I have always been able to keep the land in good condition, and have had the pleasure of harvesting all first-class fruit, which has generally found ready sale at the highest market prices.—D. W. Piercell, in North Am. Horticulturist.

WRAPPING FRUIT AND VEGETABLES.

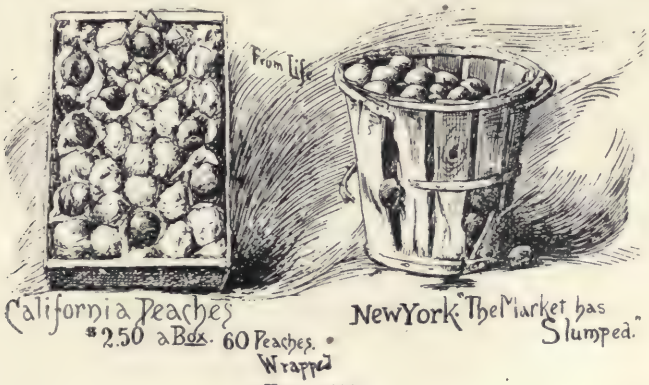

FIG. 1544.

AT the recent meeting of the Michigan fruit growers, H. E VanDeman said —"There is nothing very mysterious about the success of the California fruitg rowers. In the first place, they take pains to produce high-grade fruit; then they fix it up in the nicest packages they can devise, and wrap every pear, every peach, every fruit, except cherries, in tissue-paper, some even having their brand printed on the tissue-paper. And this fruit they send here, and with it capture the fancy market. The way to beat California is to beat her at her own game. If it pays them to buy tissue-paper and wrap their fruits it will pay you. Fruit which is wrapped is of better quality. The wrapping retains the flavor. Why do the Florida people wrap their oranges? They wrap oranges with skins as thick as sole leather because it retains the aroma. With a pear the longer that fragrance escapes the poorer it is. The peach, pear or plum that is wrapped is better than if not wrapped.

THE STIRLING HORTICULTURAL SOCIETY.

FIG. 1545.—MRS. JAS. BOLDRICK, *President.*

THE Secretary, Mr. David Sager, sends us a very good review of the work of this Society during the year 1898, which was read before the Society by the Vice-President, Mr. J. S. Carstairs. He also encloses us a photograph of the President, Mrs. Jas. Boldrick, of her home "The Cedars," and of the home of Mr. Carstairs, "The Gables."

1. The financial condition of the Society furnishes excellent ground for congratulating the Board of Management. Of the total receipts amounting to $128, more than one-third has been returned to the members in premiums and prizes; another third was expended on our periodical, THE CANADIAN HORTICULTURIST, and the remaining small third includes our running expenses of less than $15, and our handsome little surplus of $26.41, which is reposing snugly n the bank. As a fact, we have collected one dollar a piece from our fifty-three members; we have given them each what has been received, and we have still on hand one-half of what we collected, still at your command!

2. Practically there have been three distributions of premiums. First, the premium of the HORTICULTURIST; the shrubs and trees received have been generally successful, in some cases shrubs have flowered in the first year.

In the Spring distribution of the Society itself, $28.89 was expended, each member thus receiving seeds and vines costing about 45 cents, which owing to our discounts were worth from 75 cents to 90 cents. Altho' in some cases the seeds, or the man with the seeds, or the weather failed; still we are led, both from our own experience and from the testimony of others to regard this distribution as a success, considering the spring and summer; a success, it is true, that we may make greater in the year 1899. Our third distribution, $13.80 worth of bulbs, that is about 15 bulbs for each member is still to be heard from, and still to be seen in the brightening glory of tulips, hyacinths and narcissi, that will gleam in a half a hundred homes of Stirling.

3. The monthly meetings of the Society have all been regularly held with the exception of the December meeting. Whether it is owing to the moon or the members, the attendance has been only fair. However, there are many of the members, chiefly ladies, it must be said, whom neither darkness, nor storm kept away. Perhaps in the new year, both the attractions of the programme and a little self-correction in the members may give us larger meetings, a wider enthusiasm, and thus wider usefulness as a Society.

The public meeting at which Mr. McNeill, Director of the Ontario Fruit Growers' Association, delivered a lecture, was extremely profitable, and well attended.

4. The horticultural exhibit of flowers at the North Hastings Agricultural Society attracted much notice both by its beauty and its variety. This was enthusiasm of our President, Mrs. Jas. Boldrick. Not darkness, nor rain, nor storm, nor even illness has prevented her attendance at our meetings or her performance of the duties of the chief office of the Society. Notwithstanding the depressing effects of badly attended meetings, and of criticism sometimes unfriendly, Mrs Boldrick has given the

FIG. 1546.—"THE CEDARS," Home of Mrs. Jas. Boldrick.

our initial attempt, and perhaps we do not overstep the duties assigned to us if we look forward and suggest that next year premium cards should be offered for flowers in classes; and it may be limited to flowers grown from our Society seeds, bulbs, etc.

5. In conclusion, this report would be incomplete, if it did not place on record the untiring energy and boundless business of the Society her unwavering care and constant supervision. In fact, it is to the ladies that the Society owes its heaviest debt. It was three ladies that founded it, and if we now can present the report of a very successful year's work, it is owing to the efforts of Mrs Boldrick, and of the other ladies that have had an active faith and an active interest in the organization.

FIG. 1547.—BALDWIN SPRAYED.

GOOD RESULTS FROM SPRAYING IN EASTERN ONTARIO.

SO varied have been the results attained by fruit growers, from their work in spraying, that as varied opinions obtain regarding its benefit. The real explanation no doubt is to be found in the various methods of application, for it is only now and then that the work is done as it should be done.

A good example of the success attained by Mr. Wm. Orr in 1898, is seen in the orchard of Mr. Claude McLachlin, Arnprior, a gentleman who previously had little or no faith in the work. We publish a letter written by him to Mr. Orr, on the 29th Dec., 1898.

"In reply to your written reference to the spraying of my apple trees, I would say that in the fall of 1897, I was completely discouraged with the result of my apple crop, so I made up my mind to cut out all my trees (I have about 500) in fact I had cut some of them down when I was advised by a friend to give them one more trial, and to try spraying. The following spring I was making inquiries about a spraying machine when I received a notice from Mr. Orr, calling a meeting of those interested in fruit raising in this section, and stating that it was the intention of the Government to conduct spraying experiments in different parts in the Ottawa Valley. I attended the meeting and was so much pleased with Mr. Orr's explanation that I immediately offered my orchard for the experiment, part of the trees were sprayed and part left

unsprayed. With the result of the spraying I am more than delighted, the apples of the sprayed trees were round and large, the foliage a good rich color, and the trees made more growth than ever before in one season. In the fall of 1897 I had no apples fit for use, all were small and scabby. In the fall of 1898, on all trees sprayed I had perfect large and round fruit, and although the past season was an off year, I had some of my trees propped, they were so loaded. On the unsprayed trees the fruit was poorer, even than in 1897, and perfectly useless. I have bought the machine with which the spraying experiment was conducted, and I intend using it next season, when I expect even better results, as my trees were in very bad shape from the many insects that affected them. This fall they look clean and healthy. I am fully convinced that with good systematical spraying and ordinary care of the trees, we can raise as good apples in this section of Canada, and better than in most sections.

"The spraying experiment of the Government was of very great value to this section, and was much appreciated by the people."

Our protogravures show (Fig. 1548) Baldwins unsprayed, almost bare of fruit and with sickly foliage, and (Fig. 1547) Baldwins sprayed, with healthy foliage and a heavy crop of apples.

Let us have thorough work all along the line in this work during the summer of 1899, and let no country excel Canada in apple production.

FIG. 1548.—BALDWIN NOT SPRAYED.

A NOVA SCOTIA GOOSEBERRY.

THAT our sister province by the sea is not behind in fruit culture is well evidenced by her magnificent Gravenstein apples, which command so ready a sale in the best markets. Gooseberries, we would suppose, should do well so near the sea; and this is farther evidenced by the accompanying engraving from a photograph, sent us by Mr. D. H. McFarlane, of Pictou, N.S., accompanied by the following note:—

"I am sending you a photo of a seedling gooseberry grown in Pictou County. I have been growing it for the last twenty years, and I find it a very good one with good cultivation, it grows very large, colour when ripe red; with me comparatively free from mildew, name Webster's Seedling."

FIG. 1549.—NOVA SCOTIA SEEDLING GOOSEBERRY.

STARTING PLANTS IN MOSS.

A very neat way to hurry our cuttings and bulbs is to use moss instead of earth. Take a large tomato can with holes punctured in the bottom, or an old leaky pail half filled with clean moss, well pressed down, and place a geranium on it with well spread roots, and then fill the tin up with moss, and you will be surprised at the result. The geranium has blossomed more satisfactorily with me in this way than in earth, the blossoms being richer, larger and more vigorous. It needs only pure water, rain water preferred. For verandah basket culture, give plenty of water. Will the ladies please try and report?

M. A. HOSKINS.

Newport, Vt.

APPLES FOR EXPORT.

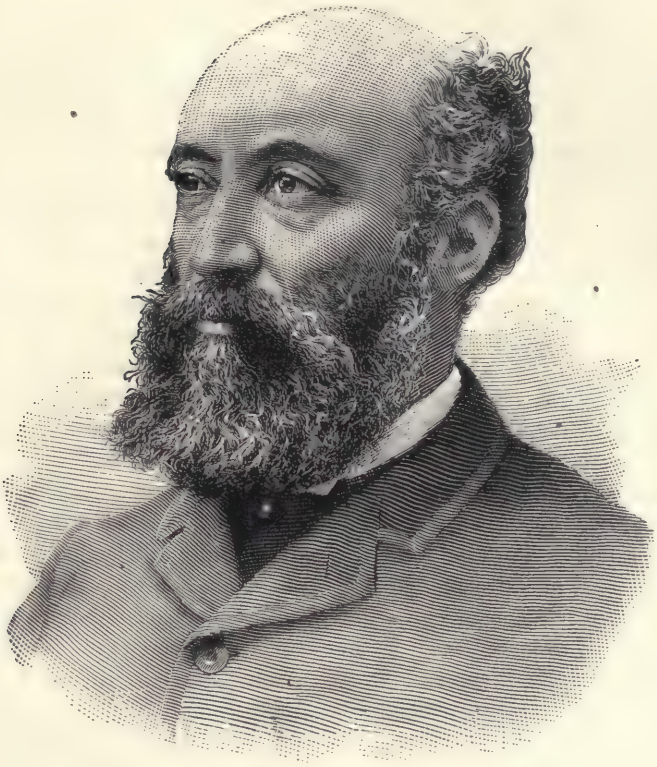

FIG. 1550.—MR. ALEX. MCD. ALLAN, GODERICH.

IN this district, consisting of the Counties of Huron, Bruce and Grey, almost all the varieties in the apple have been tested, and we still cling to the older tried kinds, as containing those qualities not only adapted to the climate and soils, but also most valuable in the home and foreign markets. It is hard to get beyond the Baldwin, Greening, Spy, Ribston, Blenheim, King and American Golden Russet (properly the Golden Russet of Western New York). The Ontario is the only newer variety that seems to have staying qualities generally. Ben Davis succeeds well but flavor is against its permanence for market, and the same may be said of Canada Red, Phœnix and a host of others. Of course the cry is often heard that many of even the old sorts are dying out, or rather deteriorating in size, form and flavor. Why?

A great many causes can be fairly given. First of all the fault lies at the grower's door, for neglecting the well known rules for production of crop of any kind, namely, cultivation and manuring. Upon a majority of farms the orchard is the neglected spot. But look at many newer kinds and what do we find? Some flourish for a while after introduction and then rapidly run back in outward marketing and flavor. When the stock is fresh from the propagator's hands we naturally look for

best results, because the trees have all the vigor of a newly found seedling or the benefit of a successful cross. I believe something beyond growers' neglects after planting can be discovered, if we look into the early history of varieties closely. Nurserymen have something to answer for in not selecting wood from perfect trees to use for budding. To me it seems reasonable that wood taken from a tree that is not strongly and well cared for is not fit for use in producing young stock as it does not contain the elements of permanency any more than we find in similar cases among animals.

In selecting seed we know it pays to select only from trees that are perfect in form and free from disease of any kind. Why not apply the same rule in selecting budding and grafting wood?

But, as I said already, the greatest fault is with the growers, and only persistent educative influences, such as the Fruit Growers' Association and Farmers' Institutes exercise, can ever accomplish the end so much to be desired. Returning to varieties, there is one I would like to see more largely introduced, the Stotts Russet, and improvement can still be made in this very desirable sort if some enthusiastic would take the trouble to get a cross of the Golden Russet into it for the purpose of toning down Stotts acidity slightly. I wish the Ontario had more firmness also.

Pèwaukee was very promising but does not stand abuse as well as the old kinds named. Years of neglect have served to give us the Greening in many forms, but seldom do we find one with the well-known markings of this fine apple of years gone by.

If we, in Ontario, paid as close attention to the production of perfect apples as growers in Florida do in respect of oranges, the demand in all markets for our apples would increase enormously and we would not hear so many crying out about over-production. The over-production is only in poorly grown fruit, and by persisting in this course we are destroying markets and cutting off consumers instead of increasing. There is money in Fameuse if we give markets what they want in quality. If everyone concerned from the propagator to the grower could only be educated to a full sense of responsibility in attending closely to rules that common sense dictates and science teaches, we would have larger orchards, with proper room for trees to flourish and produce perfect fruits, and markets that would consume all we could grow and look for more.

But we have all departed from the orders delivered to our first parents when placed in Eden, and hence, our Edens are becoming worse and worse, just because we do not repent of folly and obey the rules laid down. Of the the varieties mentioned the Stotts brought the highest prices in Britain and Germany the past season, Kings came next, then Blenheim and Ribston, followed closely by Baldwin and Ontario and Greening and Spy very little lower. In all these there was demand constantly, while many other sorts brought occasionally good prices. Fameuse and Wealthy did well, where selected and delivered in small packages, Pewaukee is not a good packer being so uneven in form and varied in size.

ALEX. MCD. ALLAN.

Goderich, Ont.

RAMBLING NOTES.

From St. Thomas, Ont.

THE past season, taken all in all, was a fairly good one for fruit growers in this section of the country. The quality of the strawberries grown here was poor after the first picking. More than half the crop being what I call nubbins, caused I think by the extremely dry weather just when the fruit was setting. I like the Williams, the Woolverton and Bubach. Crescent and Wilson are too small for this market.

Early raspberries were scarce and high in price. Late berries were a good crop and prices dropped to $1.00 per crate of 24 boxes. I fruited Conrath and Loudon this year for the first time and I like them both, they have come to stay. The first is a black cap, hardier, larger, as good a cropper and a better table berry than Gregg. The latter, a hardy stocky red berry, larger than Cuthbert and of fine color and flavor.

Pears were a good crop, choice Bartletts and Clapps brought $1.00 per bushel on the local market, but late pears appeared to be a drug at 50 cents and 75 cents. Apples were only a fair crop, but prices were good, and many farmers received as much from an acre of orchard as from the rent of fifty acres.

Plums were a good crop and brought good prices. This section produces now nearly all the plums that the city requires, where only a few years ago there were scarcely any grown; the plum belt and peach belt is becoming broader every year. Every Abundance plum tree in this section was loaded all they would carry, and every one is delighted with the fruit, both as to appearance and quality. It is a great acquisition to the list of plums. I sprayed thoroughly this year for the first time, and had fifty bushels of clear fruit from young plum trees. I am pleased with my experience, and shall spray again.

In my experience Japan plum trees will not stand the same strength of Bordeaux mixture as other plums. Neither will peach trees. Why don't those Government sprayers tell us these things so we would not have to learn by dear experience? I wish some one would tell me the best way to get borers out of plum trees and keep them out.

A. W. Graham.

St. Thomas

PROTECTING STREET TREES.

Fig.—1551.

Shade trees along a village or city street are liable to damage from the gnawing of horses that are stopped near them, and sometimes even hitched to them. A high protection of stakes and wooden slats is not attractive. The illustration shows how shade trees can be wound with the narrow lengths of wire netting, and thus protected at little expense of money or labor, while the result is not distressing to the eye. Very narrow wire netting is now to be had, and this is capable of such stretching as to make it lie very flat and close to the bark of a tree. The upper end of the strip should be beveled when in place, so as to leave the top of the wire even all the way around.

THE NEW FRUIT CULTURE.

IT has been so fashionable of late years to talk about "The New Onion Culture," "The New Strawberry Culture," etc., that it seems quite in place to make a few remarks about the "New Fruit Culture." Certainly, if we may judge by the experience of the past three years, the old fruit culture is no longer profitable, and some new methods must be adopted or else the business will be declared a failure. One-half the varieties of apples are worthless for scab, one-third the whole crop of tree fruits for worms and curculios; grapes, raspberries and currants have glutted our markets, and what are we to do?

Right here comes in the value of improved methods such as the O. A. C. can point out, the faithful observance of which will make fruit culture as good a line of agricultural life as it ever was.

Let us very briefly refer to some of the apparent difficulties and see if we can find a solution.

(1) *The Glutted Markets.*—This is only an imaginary difficulty, a mote that obscures the visions of larger things. Our little Ontario has filled its own markets with home-grown fruits, and fancies it has filled the whole world, and individual growers are giving up in discouragement. How foolish, when the big markets have hungry mouths wide open for our luscious fruit products; when Covent Garden, England, will take all the apples we can send, and when Antwerp in Belgium and Hamburg in Germany are both clamoring for a share of our dessert apples.

I have just received returns from Hamburg for some prime apples sent to that market in cases; they were fancy apples of course. What do you think were the net returns? Fifty cents for a one third bushel, or $1.50 per bushel. Similar prices prevailed in other European markets. Is that a failure or a success?

Does that look as if there was no market for Ontario apples?

Then our magnificent Canadian pears. We have shipped several car loads to Bristol this year, and the net returns have varied at from 50 cents to $1.25 per 3rd bushel case. Is there then no encouragement for growing pears in Ontario? I might go on and enumerate other fruits in the same manner, but time forbids.

I have shown, I think, that there is plenty of market for tip-top stock that is worth conveying to a distant market.

The next difficulty is "*How to sell the fruit which won't pay to export?*"

Why, you must stop growing such stock entirely. It will pay to export Duchess, Alexander, Gravenstein and Wealthy apples; it won't pay to export Fall Pippins, Rambos, or any soft, poor looking apple that is given to spot. It will pay to export Bartlett, Bosc, Anjou, Clairgeau, Boussock, and such pears, but not Buffum, Tyson, Rostiezer, Vicar, or other such inferior varieties. It will pay to export a firm peach like Elberta and Smock, but not a tender variety like Early Crawford. What must be done? Why you must plant, with a purpose, the varieties that will export and then you can capture the best markets in the world.

But *the worms*, *the scab*, etc., what about them? Why, kill them. You must, or they will kill your trade. Fight them with the spray pump. Not with a little shower from nozzles held by men riding lazily about in the wagon, but by wide-awake chaps who will get under and into the tree and cover every inch

of wood and foliage with the deadly mixture.

You must fertilize, cultivate, spray, prune, and thin in a new and improved fashion, until you learn how to produce the largest and finest fruit in the world, and then you will find fruit culture not only inviting, but quite as remunerative as any other line of agriculture.

L. WOOLVERTON,
in O. A. C. Review.

RINGING GRAPES.

THE question of allowing ringed grapes to be entered in competition for prizes has long been debated, and in many cases judges have ruled adversely. We believe the advisability of the practise is not yet sufficiently settled to justify such action. Indeed it has been claimed by some growers that ringing is a benefit even in the commercial vineyard, not only ripening the fruit from ten days to two weeks earlier than when not ringed, but also considerably improving its sweetness.

Experiments have been in progress at the Massachusetts Agricultural College since 1877, and have gone to show that the practise is advisable and does not injure the vine. An analysis by Dr. Goesmann showed the increase of sugar in juice as follows:

In 1877.	Ringed.	Not Ringed.
Concord	19 per cent.	13 per cent.
Hartford	12 "	8 "
In 1889.		
Concord	8 "	6 "

Dr. Jabez Fisher also made some private experiments. In July, 1888, he ringed some Concords when the berries were about a quarter of an inch in diameter and the ringed fruit showed color August 24th and the unringed Sept. 2. On July 2, 1889, he ringed two bearing arms on sixty vines, taking out a ring of bark from one half three-quarters of an inch wide, near the trunk. The result was increase of size about 30 or 40 per cent., and about ten days' gain in ripening.

In 1890 he ringed nearly an acre of Concords, which showed color Aug. 17 and those not ringed August 25. The former were marketed Sept. 22, the latter Oct. 3. Twenty-two specimens of each sent to Dr. Goesmann showed 9 per cent. of sugar in ringed and 7 per cent in those not ringed.

Mr. Fisher observed, however, a weakening of the vines so treated, which made him question the ultimate benefit of the procedure. Perhaps if he had confined his work to branches which would need removing at the next pruning, instead of operating on the two main arms, he would not have weakened his vines so much.

Prof. Bailey quotes a writer in the valley of the Hudson, where a good many growers have been practising this custom, who says:

"That girdling destroys the flavor of some varieties has been well shown; that others, when girdled, never seem to ripen, or in other words remain sour, is also true. A girdled Catawba rivals a cucumber pickle for acidity, and a Delaware so treated never gets sweet. Empire State loses all its character when girdled, while Martha and Wyoming Red suffer no less in quality. Concord and Champion are girdled freely without bad effects. Worden and Lady sometimes crack badly when girdled; both are very thin skinned varieties. As a general rule the more delicate flavored grapes, especially if they contain foreign blood, deteriorate most by girdling.

NOTES BY THE REPRESENTATIVE OF THE O. F. G. ASSOCIATION TO THE W. N. Y. H. SOCIETY.

FIG. 1552.—W. M. ORR.

THE 44th annual meeting of the Western New York Horticultural Society was held in the City Hall, Rochester, on the 25th and 26th of January. Morning, afternoon and evening sessions were held. The hall, which holds about seven hundred, was filled at most of the sessions, so that standing room was not available.

The president, W. C. Barry, was not able to attend, being sick. Mr. S. D. Willard, Vice-President, who is well known to Ontario fruit growers, ably presided. This Society is particularly favored by having such a large number of professors from Geneva and Cornell Experiment Stations, to attend their meetings. They appear to be able, willing and anxious to solve all the problems that arise, and to give the fruit growers all possible information.

This Society has done good work, not only for the fruit growers of New York State; its influence has overleaped state and international boundaries.

Dr. G. C. Caldwell gave an address on

DECAY AND PRESERVATION OF FRUITS.

Several species of fungi are the causes of the rotting of fruit. It attacks both ripening and ripe fruit, and is sometimes found in the blossom. The fungus germs are carried by flies and wasps. Spraying is the only remedy, and to secure the best results must be continued much later than we have been doing in the past. Thorough tests have been made of late sprayed fruit, but no poison was found, so it is not considered dangerous.

The fruit exhibit was very fine. Messrs. Elwanger & Barry showed fifty varieties of pears, all in excellent condition, some specimens of Anjou being remarkably fine. Geneva Experiment Station showed fifty-six varieties of apples. There were many other fine exhibits of apples, and about sixty plates of grapes shown. A new pear shown by E. Moody & Sons, of Lockport, is a handsome russet winter pear, but said to be rather poor in quality.

Peach orchards in South-Western Michigan are being attacked by a new disease, said to be more serious than the yellows. It was first noticed three or four years ago, and is particularly bad in Sangatuck Township, where thousands of trees have been ruined by it. The effect is that the fruit is stunted when it is about the size of a plum, and

ceases to grow, and the tree loses vitality. This disease was also reported at Cayuka Lake, and in peach orchards on the Niagara river opposite Queenston. Mr. R. Morrill, of Benton Harbor, Michigan, President of Michigan State Horticultural Society and a large peach grower, says that this disease is quite as contagious as the yellows, that there is no known remedy but to dig out and burn roots as found.

Mr. S. S. Crissey, of Fredonia, N.Y., read a paper on the

Chautauqua and Erie Grape Company.

The Chautauqua-Erie Grape Belt includes eleven townships ; nine of them border on Lake Erie and join each other. There are twenty-seven thousand acres planted with grapes. Ninety-five per cent. of all the vines planted are Concord. Two thousand five hundred growers, representing twenty-five thousand acres, are members of the Company. The objects of the Company are to supply a uniform grade of fruit, prevent the overloading of the markets, secure a wider and more equal distribution of the fruit at the least possible cost to the producer. There was shipped from this district in 1897, 6,000 car loads of grapes. The crop was lighter in 1898, being estimated at 4,000 cars. The Company handled in a single day, Oct. 16, 218 cars of 2,800 baskets each, or 600,000 baskets. They handled in a single week over 1,000 cars. Each day's shipment was pooled separately and every basket accounted and paid for. The Company paid all expenses, all losses, and every grower in full, at a cost of less than three mills per basket. The business of one year amounted to nearly one million dollars. Seven and three-quarter cents each was the average price received by growers for nine-pound baskets of grapes.

Mr. J. J. Borden, Inspector for San Jose Scale, reported a very bad infestation on Long Island, he found seventeen Nurseries infested. Flushing Cemetery is also badly infested, both trees and bushes, including two rows of elms from forty to fifty feet high. Beach, maple, linden, in fact almost all kinds of trees are infested.

Central Park, New York, he says, is badly infested. He reports thousands of trees killed by the scale, and hundreds of thousands dying, including many full grown apple trees.

Professor Beach says that stock solutions for Bordeaux Mixture is all right, but they must not be mixed until wanted for use, and then they should not be put in the spraying barrel until the barrel is partly filled with water, as when put together at stock-strength a chemical action takes place which injures the mixture. He says that he would not use Bordeaux Mixture that had been prepared for over two days.

D. K. Bell, of Brighton, gave an instructive address on "Pear Culture." Clay loam the best soil for pears. Clapp's Favorite, Bartlett, Seckel, Sheldon and Duchess, were among the varieties recommended; he advises planting about two feet deep, and making a large hole to give ample room for the roots. Training should be done while trees are dormant, say from Nov. 1st to March 1st; he prefers the pyramid system of pruning. Pear trees should be pruned annually, and well cultivated and fertilized, using manure every other year Let the trees have plenty of sunshine and air, don't grow any other crops on the ground after the trees are eight years old. Thin the fruit early in the season.

FIG. 1553.—PROF. S. A. BEACH.

A discussion as to whether it is better to give an orchard clean cultivation, or keep stock of any kind in it, brought out the fact that clean cultivation is growing in favor. Numbers who opposed it a few years ago acknowledged that they had changed their minds.

Sutton's Beauty was spoken of as a first class apple.

A discussion on Japan plums brought out the following: Red June said to be fairly good, and profitable on account of being two or three weeks earlier than any other variety. Abundance and Burbank said to be abundant bearers of fruit, of quality from poor to medium. Wickson a large beautiful plum of good quality, and quite hardy, but doubts were expressed as to its productiveness.

Thinning of all kinds of fruit was recommended to secure better specimens, and preserve the vitality of the tree.

An interesting paper, on "Apple Canker," was read by W. Paddock, of Geneva, which will appear in another issue.

Your representative was kindly received and courteously entertained by the Society.

W. M. ORR.

Fruitland.

MAKE YOUR OWN PLANT CUTTINGS.

CUTTINGS of many of the plants to be used in the flower garden should be rooted during the months of February or March. Geraniums made during these months should be covered with blooms during the summer months if they are given proper care.

Other plants that add greatly to the beauty of the garden, and which may be propagated by cuttings, are the Coleus, Iresine, Althermanthera, and Centaura. These plants all root readily from cuttings; they can be started in a cutting box in the window, which should be as long and wide as desired for the limited space, and about four or five inches deep. It should be filled with clean river sand. When the cuttings are first made they should be shaded during the heat of the day and sprinkled several times a day until the cuttings become thoroughly established. The sand should always be kept moist but never wet.

Cuttings are often rooted in a deep plate filled with moist sand. There are various contrivances used for rooting cuttings, but in each case the rooting medium is clean moist sand. Soil is apt to become soggy.—*Kansas Bulletin.*

NIAGARA DISTRICT FRUIT MEN.

AN important meeting of fruit growers was held at St. Catharines on Friday the 17th February, at which commission merchants and railway men from Toronto, Ottawa and Montreal were present, and also Messrs. Bain and Gibson, members for Wentworth and Lincoln.

The commission men were blamed for selling fruit by auction, for selling all grades of fruit at the same price, for wholesaling to themselves, and then retailing at a much higher price for which the grower got no account; for using the fruit, which is the property of the growers, for competing with other commission merchants, etc.

To these points the commission men replied, pointing out that in some cases the auction system was a good means of getting the fairest price for each man's goods, for thereby all packages were sold wholly on their merits; that the best commission men were these who confined themselves to the wholesale work, which some did not do; that usually packages of fruit were classified according to grades, at once on arrival, and sold accordingly, but that on a slumpy market all fruit would be sold in bulk without distinction of grades.

The subject of transportation of fruit was taken up in the afternoon, and it was shown that we need (1) better ventilation for cars which carry fruit, by means of a rapid circulation of air; (2) lower rates to Manitoba, which would result in a largely increased volume of trade; (3) greater speed or dispatch, especially for small lots.

Mr. Clemes of Toronto said he could find little fault with the ventilation of cars coming into Toronto, from any points in Ontario; but the methods of packing a car were bad. The Florida shippers take pride in loading a car, and it is done with such system that it is worth anyone's time to see; Canadians too often ship in a higglede-piggledy manner.

Mr. Callahan of Montreal thought the service very good to Montreal, the new refrigerator cars, fitted with Clark's patent, and numbering from 50,000 and upwards, are well ventilated. The rates could not be better than last year, 33c. a hundred from Toronto to Montreal.

Mr. Hunt of Ottawa thought that with well ventilated cars it was not necessary to use ice on short distances. Mr. Albert Pay said the kind of cars furnished by the Grand Trunk in 1898 were a disgrace—dirty with coal dust, patched up floors, and generally shabby.

Mr. Robinson, representing the G. T. R; said that in 1898 fifty of the Clark's patent ventilated cars ran between St. Catharines and Montreal, and in 1899 there would be about 500 of them in use for fruit growers, but he would not advise their use without ice.

Mr. E. D. Smith said even these cars were not sufficiently ventilated. The opening is only about four inches in diameter, entirely too small; it should be three feet wide, a foot high, and placed in front of the car, with a wire screen to protect from dust.

Mr. Grant of the C. P. R. said their ventilated cars had an opening at the ends three feet high and two feet wide, with a sheet of wire cloth to protect from dust.

Regarding rates to Manitoba, he said these had now been lowered 33 per cent., and were now as low as anywhere else on the continent. The rate for apples from Ontario to Winnipeg was

now only 50 cents a hundredweight, and for grapes 81½ cents a hundred (as third-class freight).

The re-icing of cars en route to Winnipeg had, in some instances, not been done frequently enough, but arrangements have now been made to have this carefully remedied, and such cars will be re-iced as often as is necessary.

The agent of the Niagara Central said that if shippers had any farther grievances they should appeal to the Freight Agents' Association, which meets at Toronto every month, representing all the railways of Canada, and the secretary is Mr. John Earls, Union Station, Toronto.

The Packers' Association had recently met with this body and received some important concessions, and the Fruit Growers might do the same.

The agent of the Intercolonial said that his road was now in a position to forward fruit in the best condition to the maritime provinces.

Excellent addresses were delivered by the Hon. Wm. Gibson, and the Hon. Thos. Bain, in which they congratulated the growers on the grand progress which had been made in their business during the past few years, and referred to the need of better service for distribution of fruit from such centres as Montreal and Toronto. Public opinion was turning rapidly in the direction of the appointment of an independent Railway Commission, to which could be referred all matters of dispute between the Railway Companies and the shippers—a committee which would be entirely outside of political influences, and the sooner this is appointed the better in the interests of the public.

The Secretary of the Ontario Fruit Growers' Association said a committee had been appointed by that body which would take up the matter of Railway Transportation in earnest, as soon as it was possible to put down in black and white exactly what the growers want. For this purpose he was present at this meeting, and was prepared to receive complaints from all parts of Ontario. These would be looked into by the committee and put in shape to be laid before the Railway Commission should such a body be appointed.

The following resolution was moved by Mr. D. J. McKinnon, seconded by E. J. Woolverton, and unanimously carried :—

"That in the opinion of this Association the service rendered the public of this country by the railway and express companies in the matter of transportation of fruit, is not wholly satisfactory in respect to ventilation of cars, to despatch, and to rates; that the fruit growers have long striven to secure better service, but with little result; that to remedy the evils complained of this Association deems it absolutely necessary that a Government commissioner be appointed with the fullest discretionary powers to investigate the whole question of service rendered by public carriers both as to its efficiency and reasonableness of charge, and to remedy all evils that may have arisen under the monopolistic system heretofore in force."

FROZEN PLANTS.

Many people are at loss what to do when plants have been frozen. While on a visit to Lansing, Mich., Prof. Craig visited the greenhouse of Prof. Taft. It so happened that the previous day had been Thanksgiving, and the man in charge had remained away all night, the result being that every plant was found to be badly frozen. Prof. Taft at once procured a quantity of tobacco and filled the whole place full of smoke in order to lessen the strength of the sun's rays. He then turned on the water in different parts of the greenhouse in the form of fine sprays. He heard later from the professor that the plan had succeeded admirably, very few plants being killed. It is rapid thawing that hurts the plants. PROF. CRAIG.

THE TOMATO FOR EXPORT.

SIR, — I have read in "American Gardening" a condensed report of the proceedings of the late meeting of your Fruit Growers' Association. I observe that the export of tomatoes to Great Britain by your people in 1898 was not yet quite satisfactory, chiefly owing to the size of the fruit. Allow me to make a suggestion that may be helpful to you, and through you to your friends at Grimsby, Winona and Burlington, who are taking the lead in the export of fruits. It is, that at least two or three of your friends at each of these points make a small trial planting of Livingston's "Honor Bright" tomato. It is one of Livingston's latest introductions in the tomato line, and is a quite distinct variety. The description of it, to be found in Livingston's catalogue, is a fair and accurate one as it grows here. The habit of growth of the plant is almost precisely what Mitchell, of St. Mary's, recommends as the best for Northern latitudes, a flat, spreading growth. It is medium early. The fruit is of good quality, not superior to Ignotum, perhaps scarcely up to it, but good, better than many others. The features of the fruit that lead me to think that it will give satisfaction in the export business are, medium size, smoothness, freedom from crack or rot, toughness of skin (skin is of a thin, silky texture), and an apparent capacity for ripening after being gathered from the vine at the proper stage, and without deteriorating in quality, while it is ripening in the dark, or wrapped in paper. The fruit changes in color as it grows and approaches maturity just as the description narrates. Last season I gathered some fruits at the "waxy-white" stage, wrapped them in paper, and placed them on a shelf in a rather warm, probably 60°, compartment of my cellar. In ten days the fruits were a deep red and in fine condition. My gardening operations are for the present confined to the back yard of a city lot, and my experience with "Honor Bright" is confined to that, with three plants. My very little experience was so satisfactory, and my enquiries about the variety gave me such good reports, that I have confidence in recommending your friends to make small *trial* plantings of it, with a view to adopting it in the near future as a standard variety for export.

J. CAVERS.

95 West Second Ave., Columbus, O.

HOW TO KILL THE LEAF HOPPER.

Leaf Hopper, Thrip and Erythroneura Vitis are all different names for one small insect, which is often very numerous on grape vines during the summer.

It is about an eighth of an inch long, of a light color, and marked by three dark red bands. They fly from their position on the under side of the leaves when the vines are shaken and soon light again.

To combat them in the summer when their destructive work is noticeable is difficult. Now is the time. They may be found under the leaves near the vines. If the vineyard is cleaned of all litter and this promptly burned, many will be destroyed. The insects remaining on the ground can be killed by a spray of coal oil emulsion.—Kansas Bulletin.

Flower Garden and Lawn.

YUCCA FILAMENTOSA.

FIG. 1554—YUCCA.

OUR northern gardens contain no other hardy plant which in appearance is so distinctly tropical as the Yucca. It makes a fine specimen plant standing singly on the lawn, and when in bloom is a grand and beautiful object with its hundreds of drooping white lily-like flowers. Planted in good soil, and with a little space about it kept free from grass and weeds, it will take care of itself. The stem is killed down by the frost, but an annual growth is made, becoming stronger with age. It is well to place a layer of litter about the plant late in autumn, and in spring to dig in some good old manure. Besides the position mentioned for it, it is also suitable for the shrubbery border, or it may form one of a small group of shrubs, or occupy the centre of a large flower bed.—Vick's Magazine.

THE NARCISSUS NOT BLOOMING.

When Narcissi fail to bloom it is usually because the bulbs have become too deep and too much crowded in the soil by long remaining in one place, or because the bed is composed of tenacious clay soil to which the sun does not have free access. In such a position the bulbs do not ripen well because the ground is constantly moist, and in consequence they split up into numerous smaller bulbs, none of which are of sufficient size or vitality to bloom. Knowing the cause the remedy will suggest itself.

A CHEAP GREENHOUSE FOR PLEASURE AND PROFIT.

I HAVE seen from time to time in your columns, instructions on building various styles of greenhouses. Now I think I have one that some others would like. It is one which I made myself during my leisure moments, both night and morning. I present the drawings that others may do as I did. The plan (Fig. 1555) is ⅛-inch to the foot. The rafters and uprights I had made, but the rest of the work I did myself.

There are 600 panes of glass in the roof and end; the size is 8½ x 6½ inches. These were plates of pictures or photographic negatives—larger glass would be better. The glass in the belt or the upright is 9 x 12 inches. The rafters are ¾-inch between the glass and the uprights are ¼-inch between the glass. This makes everything come all right.

There are two skylights on the east, and one on the west side, two slide windows in the belt on each side of the house. From the bottom of the belt to the ground is 3½ feet. This can be made from old boxes, with a cleat or strip over the crack of the edges.

The boiler room is 2 feet deep. The bottom or sides are cemented or stones laid in cement. The top and sides are lined with sheet iron and painted to keep from rusting. The chimney is of brick about 7 feet high, and four lengths or 6 feet of 6-inch Acron pipe on top of brick. The ventilator over the boiler is of galvanized iron, 8 inches in diameter, 6 feet high, with a damper in it. This takes away gas that may escape, and is regulated at night to keep the house ventilated.

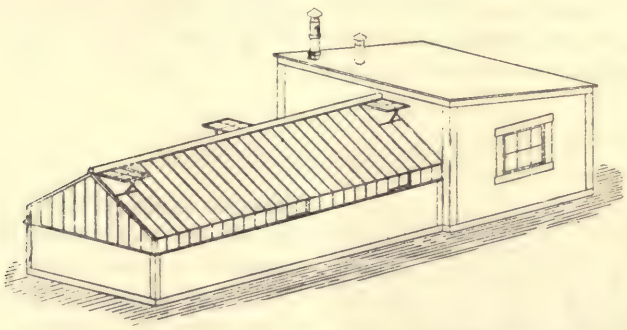

FIG. 1555.—A LOW COST GREENHOUSE AND BOILER ROOM.

The boiler is a No. 12, made by Howes, of Boston, for hot water, and is the best thing of its kind I have ever seen for a portable boiler. This is the second winter I have used it, and I do not have any trouble to keep the house at 60 degrees, when it is zero outside. It takes two tons of egg coal, and one-half ton of screenings for the year round, by putting on a little coal four times a day. The coal bin will hold one-half ton of coal and one-half ton of screenings.

There is about 112 feet of 2-inch piping in the form of the letter L running under the west side and end of bench. The east side is portable, so I can take

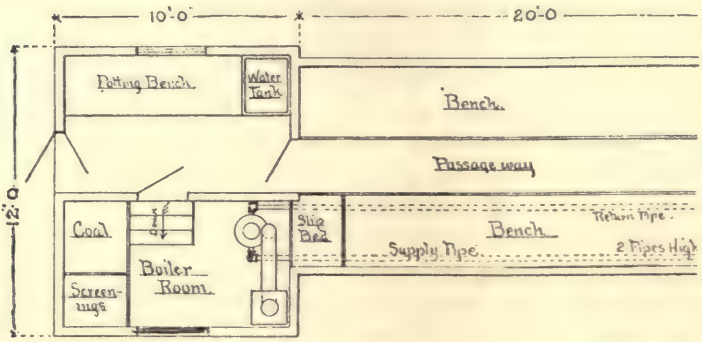

FIG. 1556.—PLAN FOR LOW COST GREENHOUSE.

the bench down when I want to stand Chrysanthemums on the ground. After they are gone I put the bench up again, and everything is all right.

The water tank is supplied with water from the roof of the shed. The house and shed are double boarded on 2 x 4 joist, making it 4 inches thick, and filled with sawdust. There are two doors at the entrance. The outside door is a good thing, as it keeps the other door from freezing or sweating.—American Gardening.

ARUNDO DONAX

FIG. 1557.—ARUNDO DONAX.

THE name Arundo is of doubtful derivation, but supposed to be from the Latin word *Arundo*, a reed. The species, Donax, is a very strong growing bamboo-like reed, having long stout leaves, that remind some people rather too much of Indian Corn. Farther south, it is much used in beds of ornamental grasses and for centres of sub-tropical beds. The roots are of doubtful hardiness here if unprotected; we lift the roots every fall and store them in a cool cellar over winter. Plants so treated do not attain nearly their full height however. Those shown in the engraving, were planted in May and photographed in October. A single specimen at our nurseries was kept in good condition through the winter of 1897, by turning an old apple barrel over the root after shortening back the stems and banking the barrel up part way with earth; this plant made growth last summer of 12 feet. Should we succeed in keeping the root through another winter, it is expected that a greater growth can be obtained by further enriching the soil. Arundo Variegata is a smaller growing species, variegated after the same style as the common Ribbon Grass; it is not quite as hardy as the green variety.

Hamilton. WEBSTER BROS.

ASPARAGUS SPRENGERI.

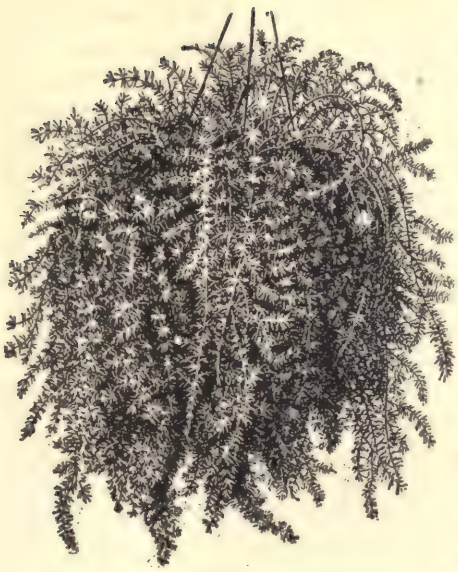

FIG. 1558. ASPARAGUS SPRENGERI.

PERHAPS no other new plant introduced within the last twenty years has been so satisfactory and so welcome as Asparagus Sprengeri — now called "Emerald Feather" by some and "Abyssinian Parlor Fern" by others. It has not only proved the most profitable plant for florists, who now grow it by the thousands, for its long feathery sprays which are used to the exclusion of almost all other decorative greens, but it is also grown extensively in baskets and in jardinieres from which the long green sprays droop for the length of 3 to 8 feet, according to the age of the plant. The engraving shows a plant in a hanging basket. It is almost unbelievable to most persons, that grand specimens measuring 12 to 15 feet in circumference, and with sprays 8 feet long, can be produced in the short space of two years from quite small plants, and yet such specimens are frequently shown, and one of them was awarded a special premium by the Pennsylvania Horticultural Society, as a reward for its remarkable beauty.

Not only is the plant extremely valuable, but it is admirable at all times, and naturally, especially so when smothered with its delicate, pure white and deliciously fragrant flowers, which perfume a whole conservatory. These delightful flowers are followed later on by bright red seed berries which remain perfect for a long while, and from which the plant can be easily and quickly propagated.

I do not know of another ornamental plant that I would prefer to this gem— and this for many reasons: First, it can be grown with less trouble than any other, whether indoors or out—sun or shade; next, it keeps green the whole year round, and its graceful foliage can be used for many decorative purposes, and also with any cut flowers. Again, it is a plant that increases in value from year to year, and does not have to be replaced like so many others. Again, it can be put to many uses, such as suspended from a porch or balcony, elevated on a pedestal, or grown in flower boxes outside of a window. It likes sun, but also grows elegantly in shade. It prefers a rich soil and lots of water at all times, but at the same time stands neglect, owing to its large fleshy roots. Owing to its rapid growth it should be repotted frequently. — Park's Floral Guide.

PLANTS FOR THE DINING TABLE.

TO one having the attention called to the matter for the first time it is surprising to note how surely fashion rules even among flowers. The use of palms and decorative plants of that order upon every occasion of social importance has opened a new field for the florist. If he be what Mr. Peter Barr refers to as a "bread and cheese" grower, rather than one cultivating plants for love of their rareness and charm, he fills his house with such specimens as my lady loves to see adorning her dwelling. She usually forgets to water, or neglects to give proper sun or shade, and in a season or two is back at the florist's door seeking fresh subjects for her jardinieres; all to the advantage of the grower and the attractiveness of the parlors, if not to that deep and abiding love of flowers that holds sway in some hearts.

A floral fad making for trade in the same direction is the growing custom of employing a jardiniere of low plants as a centre piece for the dining table. Whereas madame used to purchase cut flowers and feel her table not fitly adorned for the social function or expected guest unless some sort of floral piece, however simple, held the centre of attraction amid her silver and china, she now realizes the aggregating extravagance of such outlay, and feels herself sagacious and economical when she buys something more durable than the perishable blossoms. Best of all, just now, she likes a low jardiniere having an outside holder of silver and stocked with dainty ferns. Such a centre piece can be kept, with a minimum of care, in fair condition for three or four months. At the end of its presentableness it comes back to the florist for fresh filling. Madame wants something equally pretty with the first, but would like it as different as may be. It is in meeting this demand for suitable table plants that the florist's best wits will be likely to bring him promptest compensation. The plants would preferably not be tall, unless of delicate texture; anything being an annoyance, particularly to men, and always a menace to conversation, that obtrudes itself to intercept the eye glances of those about the table. Particularly the head of the house and Madame, being seated opposite each other, dislike a barrier to those eye messages frequently so useful to the administration of domestic affairs. Who knows what nice decisions of matters of church, state or kitchen, even a Cocos-Weddeliana might be guilty of turning away.

Of ferns, Adiantum and Pteris at once suggest themselves as well adapted to table use, either in collections or as single specimens. The woman who has a flourishing Adiantum, and a stand of Lycopodium and low ferns, may give each its days of retirement in the window, and with occasional substitution of flowers or some blossoming plant, keep up a continual variety. For no matter how lovely a thing is, an American is wearied by sameness. This is the greatest fault to be urged against the palms, dracænas and various stiff leaved tropical plants.

For grace and beauty of effect nothing can surpass a simple basket as a receptacle for plants. There must be provision for removal, for watering, and for complete protection of the table cover. The covers of the plant holder should always be subdued in tone. Soft olives and yellows can never offend the eye, but reds and blues are usually an abomination. Ferns and small decora-

tive plants, set to keep on growing in an attractive receptacle, no matter how simple and inexpensive it be (in fact the more so the better), would sell on sight in any shop window.—American Gardening.

BULBS FOR THE GARDEN.

ONE of the most eminent authorities on floriculture, Mr. Peter Barr, has recently been visiting Canada and the United States. He is an enthusiast in bulb culture, especially Narcissi, and he has travelled far and wide, in search of novelties.

Interviewed by American Gardening, he said :—

All spring flowering and bulbous plants should be placed facing the north and in a cool bottom ; Daffodils, Tulips, Hyacinths, Chionodoxae, and the whole tribe will be both lasting and beautiful and go on from year to year if these conditions are attended to, namely, a cool bottom and facing the north. Bulbous plants should be left where they are and not removed annually and not be manured under any circumstances. Every bulb that grows in Europe may be grown in the United States, and in many cases bulbs that cannot be grown in Europe can be grown in the United States. I believe myself that all the Cape bulbs could be grown well out of doors. Lilium candidum and Lilium chalcedonicum and many other Lilies do better when they are grown in tightly over-grown masses. According to experiments made by Dewar at Kew, it was found that Lilium candidum did best when the bulb was partially exposed. In a country where the frost penetrates so deeply and so suddenly, I do not see the advantage of deeply covering the bulbs. The rule for planting bulbs is three times their own depth, that is to say, if a bulb is one inch from top to base, it should have its base three inches below the surface. Crinum has a bulb of about one foot and more in length and may safely be planted at a depth of eighteen inches. A Dutchman will usually plant his bulbs, measuring by the depth of his hand placed side-ways on the ground. The Japan Irises should be placed on a bank with underflow of water as from a spring. In such situations they do simply magnificently, but they want plenty of drink and should not be in stagnant water. And the same conditions will prove satisfactory for almost all alpine plants. All the Primulas will take the same conditions. Given that condition the English Primrose would flourish as well here as in its native place. It suffers in this country from being dried up in the summer. It does not matter how much sun plays upon it so long as it has water feeding it below.

AN OUTLET FOR GRAPES.

When at Cornell, I was asked what the chances were of sending grapes to England. I replied, "If you can deliver them in condition, the sale will be immense for the street trade. The only question is how to send them over." Since I left Cornell, the subject has occupied my thoughts considerably and I have come to the conclusion that grapes put up in wooden boxes that can be retailed at 12c., 18c. and 36c. would have a large sale if handled by agents who understand the mode of distribution for that class of trade. The markets would be London, Liverpool and

Glasgow. It is not a produce for Covent Garden. American grapes will not take the place of the Guernsey or English grown grapes, but they will compete in the market with the Spanish and Portuguese grapes at any season that the grapes can be delivered in these markets.

The class that would eat these grapes would be the mechanic class. The classes that eat the grapes of Guernsey and of English growth are the upper middle class and aristocracy. The lower middle and the mechanics are a large public, ready to buy in small lots.

Before the "Lazy Club" at Cornell he spoke quite positively, asserting that he believed there is a profitable market for American grapes in the old world. If we could place our grapes in English markets for six cents a pound, tons and tons could be sold in a week. Mr. Spencer here called attention to the fact that a carload has been sent over from Chautauqua County for a number of years, but with discouraging returns. The difficulty seems to be not so much in the cost of transportation, for that hardly reaches two cents a pound, as in the market. It needs a man to push matters at the other end. For a number of years English and continental gardeners have been shipping their high priced hothouse grapes to America. At first it did not pay; the market was too cautious and prices too uncertain. Last year a hustling Englishman came over to represent English grape growers and push their interests. The result was an immediate advance in returns, so that shipments became profitable. Our American grape growers might apply this business stroke to their profit.

ELEAGNUS LONGIPES.

ELEAGNUS LONGIPES, or Japanese Oleaster, is a hardy, deciduous ornamental shrub of recent introduction, and upon trial it is found to be as valuable an addition to our list of fruits as to our ornamental shrubbery. In cultivation it forms a shrub of bushy habit, growing from four to six feet in height by as much in breadth, with oval foliage, dark green above and silvery underneath. The bark is also quite attractive in winter, being a reddish brown color. It blooms during the month of June, the bright yellow flowers being borne in the greatest profusion on long stems around the branches, and are succeeded by small oval-shaped fruit about half an inch long, and of a deep orange red color, studded with small golden scales or spots, giving it a very attractive or ornamental appearance. Not only is the fruit edible, but to most persons it is very palatable, possessing a sharp but pleasant flavor, while by many it is preferred to currants or gooseberries. And it bids fair in time to have a market.

A shrub so interesting, and promising, well deserves special attention and a place on the lawn as well as in the fruit garden; but wherever grown it should be given an open situation and sufficient space in which to properly develop.—Vick's Magazine.

THE NIGHT BLOOMING CACTI.

THE only true night-blooming cactus, especially so-called, is the *Cereus Grandiflorus*. This long specific name implies its beauty and grandeur. It is one of the most delightfully scented of all the cactus family, blooming, as noted, at night. A large plant covered with blooms, is a sight of beauty once seen that is never to be forgotten. The round stems have numerous small angles on them and are covered with delicate spines. These stems are usually about as thick as one's finger. Of late years, another member of the cactus family has usurped the name of night-blooming. This is *Phyllocactus latifrons*. It is one of the broad, flat-leaved kinds, and is so readily propagated that it has now become common. It has a long tube to the flower, which curves downward like a siphon. It does bloom at night, and in one sense is night-blooming; but it bears no comparison in any respect with the original Night-blooming Cactus.—Meehans' Monthly.

FIG. 1559.—CEREUS GRANDIFLORUS.

FIG. 1560.—PHYLLOCACTUS LATIFRONS.

PRUNE roses in spring after the buds have begun to swell. Then you will be able to see where the strongest branches are going to be and can prune intelligently. Transplant in May.—Ladies' Home Journal.

A HEDGE OF RAMBLER ROSES.

THE Rambler roses, beautiful in any situation, are especially so when grown in hedge form. In place of the stiff looking hedges of evergreen so common a few years ago, those of airy, graceful appearing plants seem more in favor, and no plant yields itself more readily to training than the Rambler rose. The frame for the hedge is the first consideration, and it can be almost any material and made in any form. Perhaps as good a screen as any for the purpose is one like an ordinary grape trellis, made of fence posts and wire. Set the posts eight feet apart. The end posts can be squared and made more ornamental if desired, but after the first year they do not show, so it matters little. The wires should be put on so that they can be stretched when necessary; often they seem quite slack after a season or two, and then we make them taut in this way: Fasten the wires securely to one end post and pass them through all the others; after they are through the last end post wind each wire around a piece of stick which can then be turned around until the wires are perfectly firm and straight. No other fastening is required. The sticks are made from stuff two inches square and are eight inches long. About three inches near the middle of the stick is rounded so that the wires will wind round it easily, and each spring the sticks can be turned once or twice to keep the wires in good order. Ordinary chicken netting can be used with less trouble at the start, but it is inclined to stretch badly after a few years, and is not durable.

The plants can be set eight feet apart, or midway between each two posts. Fasten the new shoots in place as fast as they get of sufficient length; little pruning will be required, as it is long growth one wants until the hedge is established, but all old rough wood should be removed in the spring, and occasionally the ends of rank growing branches be pinched to cause branching.

The plants are so perfectly hardy that it makes them more valuable for hedges, as often not even the extreme tips of the branches will be killed by freezing. All the varieties are also remarkably free from mildew, which is an added advantage. The flowers have no fragrance, yet bees gather on them in great numbers, probably on account of the bountiful supply of pollen found on the roses. Rose bugs do not molest them, though other roses in the same garden are badly infested. The plants blossom later than the June roses, beginning just as they are almost gone, thus prolonging the rose season three or four weeks.—Vicks Magazine.

THE CALLA LILY.

When the Calla Lily begins to bloom, if the pots are placed into shallow pans of water and left there, the bloom will be found to last much longer, and remain more plump and fresh, than where water is simply applied to the surface of the soil.

The Canadian Horticulturist

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

KIEFFER FOR TOP GRAFTING.—Quite contrary to our expectation, Kieffer is reported by an American writer as poor stock for top grafting. Every graft inserted, he says, died after one or two years' growth.

THE TERRIBLE STORM AND LOW TEMPERATURES which prevailed over the whole Continent in the early part of February has resulted most seriously in the Southern States; playing the mischief with orange and peach orchards, and all kinds of vegetables. Even at New Orleans the temperature fell to 6° above zero.

FEBRUARY NUMBER.—We beg the kind indulgence of our readers over the lateness of February number, which was due to several reasons beyond our control. (1) The lamented death of Mr. Burns, of the firm of Dudley & Burns, Toronto, who are our printers; a gentleman who has always given a great deal of personal attention to our work. (2) The change of postal regulations which required posting the Journal at Grimsby instead of Toronto, as previously.

KIEFFER FOR EXPORT.—Contrary again to anticipation, this pear has not exported as well as we expected. One lot sent to Bristol in the fall of 1898, only made a net return of about 25 cents per half bushel case.

DEVICE FOR HANGING FLOWER POTS.—Mr. A. H. Myles, of Hamilton, sends us a sample of an excellent suspensor for flower pots, which is at the same time cheap, convenient and tasty. It is made of small sized, polished brass wire, and is ingeniously clawed in such a way

that it firmly grips the pot, which may thus be safely suspended in any part of the room. Mr. Myles writes :—I send you a neat little device to attach to standard pots for the purpose of hanging them up. I find it most convenient in my little Conservatory, where I am short of room.

NOVELTIES.—We have an inquiry where in Canada to buy trees of Apples of Commerce, Champion, Delicious, Senator, etc. No, and we hope no Canadian nursery will attempt to sell such untested novelties in Canada, until they have been fruited in our country. These varieties are boomed in the catalogue of Stark Bros. of Louisiana, and of course there are always persons waiting to be caught with humbugs.

A STATE BOARD OF ENTOMOLOGY has been established in Georgia, consisting of the Commission, the President of the State Horticultural Society, and the President of the State Agricultural Society. A State Entomologist has been engaged and all Nursery goods are allowed to be delivered by any transportation company, without a certificate of inspection.

THE BEST SPRAY PUMP.—We are constantly asked "which is the best Spray Pump." Each of the firms advertising with us are first class, and each is so continually improving his pump, that now one, now another, might score the highest number of points.

THE GIBSON STRAWBERRY.—A new berry originated on the farm of J. H. Gibson, Marlborough, N.Y. Claimed to be very uniform in size, firm, mild in flavor, bright crimson in color; vines very productive.

SAN JOSE SCALE.—We have received several inquiries from subscribers to know whether any orchards or nurseries in Ontario are affected with this insect. In reply, we may state that about three years ago a committee from our Association found an orchard near the border badly infested. Entomologists were called in and great pressure was brought to bear upon the Government to prohibit the importation of nursery stock from the United States, and to have the infested trees destroyed. In response, the Dominion passed an Act preventing the importation of Nursery Stock altogether, and the Province an Act providing for the destruction of all infested trees. On investigation it was found that a few lots of the Nursery stock imported during the last five years were infested with scale, and some of it had been handled by Canadian Nurserymen. Careful searching enabled the inspector, Mr. Geo. E. Fisher, of Burlington, to trace this stock to the orchards in which it was planted, and his work is being continued on into the year 1899, for the purpose of utterly destroying such trees. Our Nursery men are all wide awake to the danger, and have had their Nurseries carefully inspected; and so far as we know every Canadian Nursery at the present time is free from this scale.

Our Affiliated Societies.

WOODSTOCK, Feb. 1st, 1899.—The following circular has been issued to our members: The President and Directors of the Woodstock Horticultural Society have much pleasure in submitting to the members for their selection *one* of the three lists of Plants, Trees, etc., as below. These lists have been carefully prepared to meet the varied requirements of our membership, but it is distinctly understood that no change can be made from the lists, each member selecting one or other in its present form. You will mark the one chosen and return this circular, together with one dollar membership fee for 1899, from those who have not already paid, not later than the 15th inst.

D. W. KARN, *President.* J. S. SCARFF, *Secretary.*

LIST No. 1.

1 Improved Montmorency Cherry.
1 Burbank Plum.
1 Yellow Transparent Apple.
4 Hersee's new Strawberry.

LIST No. 2.

1 Extra fine Canna.
1 Spirea "Anthony Waterer."
1 French Canna.
2 Burbank's select Gladioli.
1 Packet each Sweet Peas, Asters and Nasturtiums.

LIST No. 3.

1 Kentia Palm.
1 Fern.
1 New Geranium.
1 Tea Rose.
1 Hydrangea.
1 Fuchsia.
1 Canna.
1 Tuberous Begonia.
1 Tuberose Bulb.
1 Packet each Sweet Peas, Asters, Phlox Drum., Verbenas and Pansies.

KINCARDINE. — The draft of by-laws provided by the Ontario Fruit Growers' Association was adopted, with one or two slight amendments. We should have at least one hundred members here. The HORTICULTURIST has certainly improved in appearance, and may be truly be said to be the best of its kind published in Canada, and must I am sure be well received by the members of the Horticultural Societies of Ontario. Our president is Mr. S. W. Perry.

JOSEPH BARKER, *Secretary.*

PEAR PICKLES.

WHILE most of the common varieties of pears lack the decided flavor that makes them a choice preserve when used alone, they will be found delicious used in combination with lemon peel and juice or green ginger root. Even hard pears or "windfalls," pared, cored, filled with sugar and grated lemon rind and baked, closely covered, until juicy and tender, may be canned and kept indefinitely. Gingered pears make a rich sweetmeat.

Peel, core, and cut rather hard pears into thin slices. Allow to eight pounds of sliced fruit eight pounds sugar, a pint of water, the juice and rind of four lemons, and half a pound of ginger root sliced thin. Cut the lemon rind into long, thin stripes and put all together in the preserving kettle. Simmer gently for an hour, then pack in jars or cans. If the pears used for pickling are Seckels, they do not need paring, but the larger varieties usually do. The stem should be left on, but the blossom end removed. As fast as pared drop into a pan of cold water to prevent their turning black. Make a rich syrup, allowing to eight pounds of fruit four pounds of sugar, one quart of vinegar and one cup mixed spices, cassia buds, stick cinnamon, cloves and allspice. Tie the spices in a bag and boil with the sugar and vinegar. Skim thoroughly, then add the fruit—a portion at a time—and cook slowly until scalded and tender enough to be readily pierced with a straw. Skim out the fruit, put in a stone jar or glass cans, boil the syrup a little longer and pour over.—New England Farmer.

Question Drawer.

Apples for Export.

1044. Sir,—From present understanding of the varieties, can you say which would be a good paying variety of undoubted ability to hold its position to meet the market—shipping requirements, etc., etc. You named "Wealthy" once to me. Do you know I think it soft, easily mashed and so on. I can grow them to a fine size, shape and color. I would top graft Tallman Sweet for these, as they are weak in trunk and too low growing. How are Gideon, Longfield, Canada Baldwin? Can I grow the latter? Name any others.

Can you recommend me to plant 25 pear trees or more with the same view. Beurre Bosc seems to give us hope in that direction. I wish to recommend to my neighbors grafting and planting such varieties and numbers, so that we may be able to ship directly to England or sell orchard to exporters, etc.

Wm. Bacon *Manorfield, Orillia.*

The varieties suggested by our friend, Mr. Bacon, are scarcely to be recommended for export. Gideon is a pretty apple, which originated with Peter Gideon, of Minnesota. It is of the same parentage as the Wealthy, but softer apple and not so good a shipper. It is a fall apple, ripening September and October, of poor quality for dessert purposes, and only fair for dessert. It is of great value in the Algoma section on account of its hardiness and productiveness. Canada Baldwin is a nice apple, but too unproductive and too small to be a profitable variety for export; though very desirable for one's own table. Longfield may or may not prove desirable. We have not yet fruited it; but in Algoma it yields heavy crops, and the apple is quite attractive in appearance and of excellent quality.

Peaches for Norfolk County.

1045. Sir,—Will you kindly give me a list of varieties of peaches you think profitable for an orchard, those adapted especially for canning and shipping. The locality is the extreme end of Turkey Point, Norfolk Co., Lake Erie; latitude 42° 38″ north; land 15 feet above high water line and adjacent to bay shore, which surrounds it on east and south, and on west is open marsh 1 to 1½ miles, to high bank of main land; on north, thick growth of cedar, pine and red cedar, with maple, elm and walnuts and butternuts.

In this the question of tender fruit buds not important, for obvious reasons.

W. J. McInnes, *Vittoria.*

There has a considerable change come over the views of our peach growers regarding varieties, during late years. For a long time the rage was for early varieties, which were for a time very profitable; but now that Southern and California peaches come into our Province in such abundance in the early part of the season, our own early clingstones—such as Alexander, Hale's Early and others, have been less and less in demand. Fine late varieties, which come in when the imported varieties are about over, are therefore much more desirable for us to grow in Canada. Certainly we have little use for Alexander, Amsden's June, Louise, Hale, and such varieties which hardly ripen before they rot; and when they ripen, have so little quality. For home markets, the following are good:—Rivers, Barnard, Early Michigan, Elberta, Gold Drop, Kalamazoo, Old Mixon Smock Free, Stump the World, Stevens' Rareripe.

Spraying.

1046. Sir,—Are there any new developments in the spraying world that I may take advantage of on your advice? Which is the best spraying machine? I would like to spray potatoes as well.

Wm. Bacon, *Orillia.*

The excellent article by Mr. W. M. Orr, in our January number, will in part reply to our correspondent's in-

quiry. It seems conclusively proved that spraying and thinning pay. We must use every means to produce high grade fruit and to cease growing poor stock.

The best Spray Pump makers advertise with us and we cannot undertake to say which is the best. Each maker is constantly making improvements, and each have special advantages to offer.

✱ Open Letters. ✱

Appreciated in Africa.

SIR,—I am very well pleased with your publication and quite look forward to its arrival and enjoy the reading, which is at times very instructive, for although our climate is very different from yours, we have the same pests to contend with. I had a very good fruit garden where I lived last, but am now quite a statist regarding fruit, etc. Am grafting most of my apples on to pear stocks instead of quince, or apple, as I am of opinion they will be less liable to blight. I find dressing for destruction of apple bug, with Calvert's Carbolic Soft Soap, about as efficacious as any other wash. Wishing you the compliments of the season, I am, yours faithfully,

A. VINNICOMBE,
Kokstad, Cape Colony, Africa.

Apples for Glengarry.

SIR, — In the last HORTICULTURIST you give, in reply to L. Wiegand, a partial list of hardy fruits. We have a cold climate here, but seldom down to 40°, but still it sometimes is, and we have it below 30° every winter, on some occasions ; so we need hardy fruits. I do not know anything about plums or pears, but do about apples, as I have taken quite an interest in them and small fruits for thirty years. You can add the Peach apple to your list of early ones, as it is nearly if not quite as hardy as the Duchess and ripens about the same time, and for home use is a better apple. Then, for a fall apple, the St. Lawrence has no peer and is really a native seedling; for early winter, the Fameuse, McIntosh Red—also a seedling and a little better keeper than the Fameuse. These two are about the best apples you can get and are perfectly hardy. I have known the Pewaukee for about fifteen years and so far it seems perfectly hardy, is a good bearer of good apples that keep till June; and the Golden Russet does very well here, and so does the Winter St. Lawrence. I am not writing this for publication, but you can do as you please about adding any of the names to your list.

A. HARKNESS, *Lancaster.*

PLANNING HERBACEOUS GARDENS.—While most herbaceous plants can be safely transplanted at any season, the best immediate results are obtained from early spring planting. It is therefore quite appropriate to lay plans at once, that orders may be sent in good time, and the stock received for early planting.

There are constantly improvements in garden flowers, as instance the double rudbeckia, Allegheny Hollyhock, Napoleon III pink, Japanese, Irish, etc., and these properly claim every one's attention ; yet there are also many old-fashion, well-known flowers that must not be forgotten. What garden is complete without the fox-glove, anemone, columbine, aster, chrysanthemum larkspur, bleeding-heart, day-lily, flag, lavender, lily, forget-me-not, pæony, poppy, phlox, pyrethrum, golden-rod, spider-wort, veronica, periwinkle, and scores of others ?—Meehans' Monthly.

The Crocus's Soliloquy.

DOWN in my solitude under the snow,
Where nothing cheering can reach me;
Here, without light to see how to grow,
I'll trust to nature to teach me.

I will not despair, nor be idle, nor frown,
Locked in so gloomy a dwelling;
My leaves shall run up, and my roots shall run down,
While the bud in my bosom is swelling.

Soon as the frost will get out of my bed,
From this cold dungeon to free me,
I will peer up with my little bright head,
All will be joyful to see me.

Then from my heart young buds diverge,
As rays of the sun from their focus;
I from the darkness of earth will emerge,
A happy and beautiful Crocus!

Gaily array'd in my yellow and green,
When to their view I have risen,
Will they not wonder how one so serene,
Came from so dismal a prison?

Many perhaps, from so simple a flower,
This little lesson may borrow;
Patient to-day, through its gloomiest hour,
We come out the brighter to-morrow.

"*The Saturday Magazine*," *February, 1836.*

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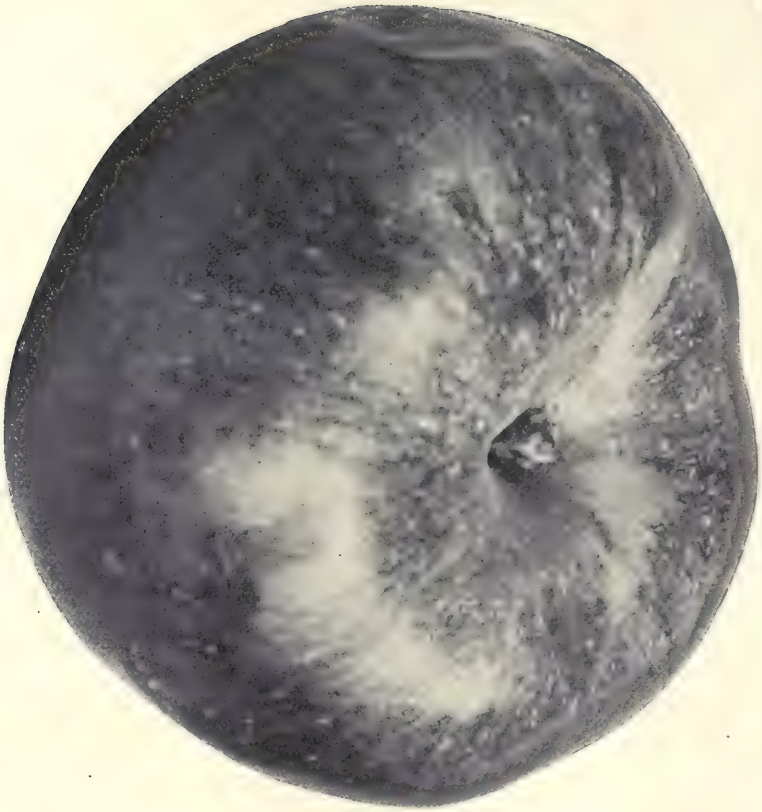
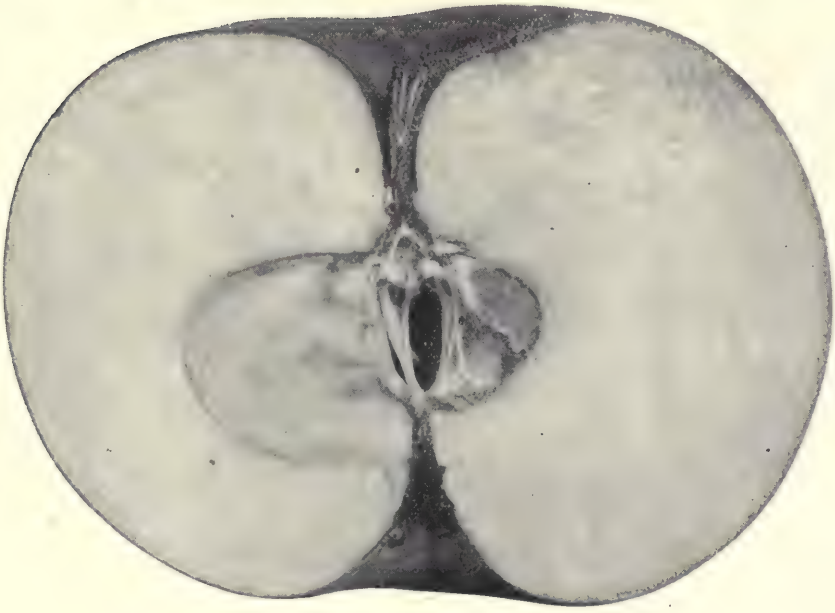
* I came across these lines in an old volume of *The Saturday Magazine* of 1836. I was only three years old then, but since I have always had a few Crocuses growing in my lawn.

C. J. FOX, DELAWARE.





THE WOLF RIVER APPLE.

THE
CANADIAN HORTICULTURIST.

VOL. XXII. 1899 No. 4

THE WOLF RIVER APPLE.

WE agree with the President of the Michigan Horticultural Society, who stated at the recent meeting that apple culture had reached a new era, in which better methods and a choicer selection of varieties are essential to success. The man who will not spray, or manure, or cultivate his apple orchard; who will not trap codling moth, top graft best varieties, grade and market his fruit in the most up-to-date fashion, must go to the wall; but the intelligent, enterprising apple grower can make as great a success of the industry as any previous time, barring, of course, years of over production like 1896.

No doubt special trade will soon arise in special fancy dessert apples, and the man who can cater to the demands of the public will make money out of the business. At Ann Arbor the writer gave the following as three profitable varieties to grow for export, viz.:—Blenheim, Cranberry and Ontario. These are varieties intended to cover the winter season from December to March, but for earlier shipments one might name Astracan, Duchess and Alexander. It has been the custom to condemn these varieties, because our home markets were overstocked, and they would not carry farther, but now that our steamship lines are being fitted up with cold storage plants, we can export them in good condition, as was proved by our experiments last August, when these very varieties commanded top prices in Great Britain. Of course they had to be graded for size, as well as quality; all wrapped in tissue paper and packed in bushel or half bushel cases, and then stand inspection by a government official before shipment.

Our frontispiece represents another apple that might be included in a list for export, viz., The Wolf River. A little later in season than Alexander, if anything larger and more showy in appearance, and better in quality, it

promises well for one of our fancy varieties for export. It is said not to be an early bearer, and to be productive each alternate year.

The apple is a seedling of the Alexander, and originated in Wisconsin on the bank of Wolf River.

The tree is very hardy, vigorous and fairly productive.

The fruit is very large, 3 inches by 4½ inches, oblate, or roundish oblate, usually regular in size; skin light yellow, shaded with dark red or crimson in sun, with a few yellowish dots; stalk three quarters of an inch long, set in a narrow deep basin, of a green or russeted color; calyx open in a narrow, deep, green wrinkled basin. The flesh is yellowish white, moderately firm in texture, not fine grained, juicy, with a pleasant, sub-acid, spicy flavor. Season October and November.

THE TRANSPORTATION OF OUR FRUIT.

FIG. 1561.—LOADING FRUIT AT E. D. SMITH'S, WINONA.

THERE is no question that it is more vital to the interests of the fruit growers of Canada than the carrying of their fruits. Numerous have been the complaints in the past, both with regard to the carriage and the rates. Ocean transportation of fruit has been extremely unsatisfactory; for even winter apples, which had been packed firm and hard in our orchards and graded with the utmost care; fruit which would keep in our own cellars for six months in good condition, after two weeks on shipboard, closed in hot, unventilated holds, have arrived in Great Britain as "slacks and wet and wasty." As a result, Canadian fruit growers were being given a bad name for packing, which they do not deserve; and the English commission merchants are blamed for false reports, because shippers cannot understand why fruit, which leaves them in first-class condition, should be ruined in so short a time.

As a remedy for this evil, cold storage has been provided on many steamers, which of course will carry apples in perfect condition. To quote from Prof. Robertson's address at our St. Catharines meeting:

"By means of cold storage even the very earliest ripening sorts can be landed in Great Britain in first-rate condition. If these are put in barrels at even 60° Fahr. and headed

up close, they will get up to 70° in the centre of the barrel in a short time. If put in the hold of the ship, the whole place soon goes above 70°, and the apples will all arrive in "slacks" and "wets." In 1897 a lot of over 500 barrels was sent over, and the half that went in cold storage sold for 18/ a brl., and the half that went not in cold storage sold for 8/ a brl. at the same time. I think I am safe in saying that 60% of the apples that go to Great Britain fetch less than two-thirds they would fetch if they were properly graded, properly packed and safely carried, across the sea. I think if the Fruit Growers' Association of Ontario does not take hold of this transportation problem and bring about better methods and facilities, they may as well go out of the business. The growing of fruit has been very well attended to, but there has been so much loss and dissatisfaction from the spoiling of fruit on the way to the markets, both home and foreign, that the matter must be taken hold of and corrected."

Considerable discussion followed both on the subject of ocean and railway transportation, resulting in the appointment of two committees to take up these matters in earnest, appealing to the other provincial societies for co-operation; and if necessary, to appeal to the Dominion Minister of Agriculture. The Committees on Transportation were as follows: *Ocean*, L. Woolverton, W. M. Orr, and A. H. Pettit. *Railway*, W. E. Wellington, W. M. Orr, Alex. McNeill, M. Pettit, E. D. Smith, T. Carpenter, R. W. Gregory and W. H. Bunting.

These committees met jointly at the Walker House, Toronto on the 3rd of March, and after a full discussion, prepared the following resolution on *Ocean Transportation of Fruit:*

Whereas, the accommodation on Atlantic steamships has hitherto been unsuitable to the carriage of our fruits, even such hard fruits as apples being ruined in transit and arriving in the British market in an unsalable condition, although in perfectly sound condition when packed and shipped; and

Whereas, the lack of ventilation, and the great heat in the holds of the vessels, added to the heat arising from the fruit itself, contributes to this evil, which has resulted in immense losses to the fruit growers in every province of our Dominion;

Therefore, *Resolved*,—That we memorialize the Department of Agriculture at Ottawa to take steps to remedy this serious condition of affairs, and thus give encouragement to one of the most important of our exports; that ventilation of the holds in which apples are carried be strictly required of steamship companies in order that the temperature be kept similar to that of the outside air; and that a government agent be employed at each of the important ports, as Montreal, St. Johns and Halifax, whose duty it shall be to see that such ventilation is attended to, and, further, to insist upon proper care in handling, loading and storage of our fruits on shipboard;

Further, that, when cold storage for fruit is provided on shipboard, the steamship companies shall be required to guarantee that the temperature will be kept within certain limits, and that the same be verified by a self-registering thermometer placed under government seal.

and the Secretary was ordered to send copies to local fruit growers associations and to the provincial societies most interested in export, as for example: Nova Scotia, Quebec, and Prince Edward Island, suggesting that they pass similar resolutions, which could all be forwarded by our Secretary to the Dominion Minister of Agriculture.

The next question dealt with was the better *classification of freight rates* on fruit; better ventilation of box cars for long hauls; and greater speed in transit. The following gentlemen were made a sub committee to carefully revise the freight classification, and to interview the Freight Classification Committee at Toronto, place fairly before them our grievances and seek for the requisite concessions, viz.: Messrs. E. D. Smith, T. H. P. Carpenter, Alex. McNeill and W. H. Bunting.

We anxiously await the result.

OUR RURAL SCHOOL GROUNDS.

MANY of our affiliated horticultural societies are endeavoring to interest the children of the public schools in floriculture. They give bulbs or flower seeds to them and offer prizes for the best results. One teacher we knew who encouraged his pupils to bring pot plants to the school, and taught them how to care for them and above all to love them for their beauty and their fragrance.

But as a rule our rural schools are an object lesson teaching neglect and distaste for ornamental horticulture. The school building itself is unsightly, and often shabby for want of paint. The school yard is enclosed by an ugly snake or stump fence, or by a board fence, half down, and gates and posts that stand awry. The extent of the grounds may be large enough to meet legal requirements but they are bare of tree, shrub, and sometimes even grass. Arbor Day is a move in the right direction, and we are pleased to credit our authorities with this enactment, which however is too often taken as an ordinary holiday, and the school grounds are no better after than before it.

Prof. Bailey, of Cornell University, Ithaca, U. S., has devoted Bulletin 160 to Hints on Rural School Grounds, and is thereby aiming to cultivate the taste of the public for better things, so that they will demand a different state of things and make the grants to schools conditional on such improvements.

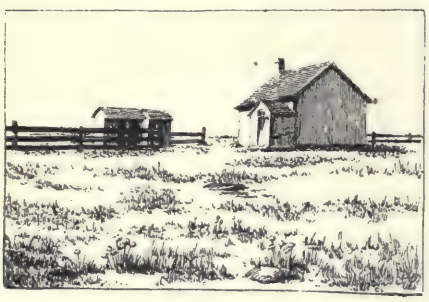


FIG. 1562.—Where Children are taught. An actual example.

Quoting a report he says: "If children are daily surrounded by those influences that elevate them, that make them clean and well-ordered, that make them love flowers, and pictures, and proper decorations, they at last reach that degree of culture where nothing else will please them. When they grow up and have homes of their own, they must have them clean, neat, bright with pictures, and fringed with shade trees and flowers, for they have been brought up to be happy In no other environment."

FIG. 1663.—A suggestion in planting.

Regarding the school building Prof. Bailey says:

"The school building is generally little more than a large box. It has not even the charm of proper proportions. A different shape, with the same cost, might have made an attractive building. Even a little attention to design might make a great difference in the looks of a schoolhonse; and the mere looks of a schoolhouse has a wonderful influence

FIG. 1564.—A suggestion for a simple school house.

on the child. The railroad corporation likes to build good-looking station-houses, although they have no greater capacity than homely ones. I asked an architect for a simple plan of a cheap schoolhouse. He gave me Fig. 1564.

The first thing to do after the school building itself is completed, is to prepare a plan of the grounds. For this it might be well to consult a landscape architect, who would give an outline ground plan, showing where trees, shrubs and plants may be planted after the correct principles of landscape art. Or if any one in the neighborhood has enough taste to do so, let him draw a rough plan first, before the first planting is attempted. A good model for a small school yard (Fig. 1565) situated at four corners, is given by Prof. Bailey, in which these principles are observed, as for example (1) an open lawn through the centre; (2) the grouping of trees and shrubs about the borders, and to hide objectionable features; (3) Laying out walks or drives by gentle curves between fixed points, etc."

We close this article with a few further extracts.

Making the sod.—The only outlay of money required for the entire improvement is for grass seed. The best lawn grass for New York is June-grass or blue-grass. Seedsmen know it as Poa

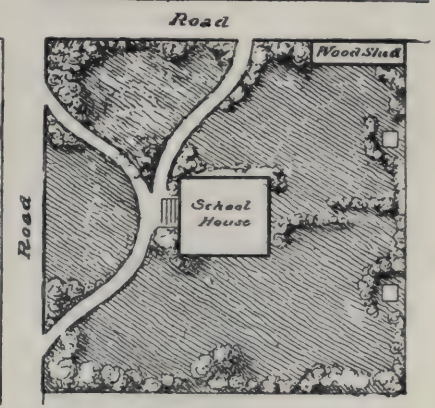


FIG. 1565.—Suggestions for the planting of a school yard on four corners.

pratensis. It weighs but 14 pounds to the bushel. Not less than three bushels should be sown to the acre. We want many very small items of grass, not a few large ones ; for we are making a lawn, not a meadow.

Do not sow grain with the grass seed. The June-grass grows slowly at first, however, and therefore it is a good plan to sow timothy with it, at the rate of two or three quarts to the acre. The timothy comes up quickly and makes a green ; and the June-grass will crowd it out in a year or two. If the land is hard and inclined to be too dry, some of the clover will greatly assist the June-grass. Red clover is too large and coarse for the lawn. Crimson clover is excellent, for it is an annual, and it does not become unsightly in the lawn. White clover is perhaps the best, since it not only helps the grass but looks well in the sod. One or two pounds of seed is generally sufficient for an acre.

How to make the border planting.—The borders should be planted thick. Plow up the strip. Never plant these trees and bushes in holes cut in the sod. Scatter the bushes and trees promiscuously in the narrow border. In home grounds, it is easy to run through these borders occasionally with a cultivator, for the first year or two.

Make the edges of this border irregular. Plant the lowest bushes on the inner edge.

. . . . . .

For all such things as lilacs, mock oranges, Japan quinces, and bushes that are found along the road sides, two or three feet apart is about right. Some will die anyway. Cut them back one half when they are planted. They will look thin and stiff for two or three years ; but after that they will crowd the spaces full, lots over on the sod, and make a billow of green.

Kind of Plants.—The main planting should be for foliage effects. That is, think first of giving the place a heavy border mass. Flowers are mere decorations.

Select those trees and shrubs which are the commonest, because they are the cheapest, hardiest and most likely to grow. There is no district so poor and bare that enough plants cannot be secured, without money, for the school yard. You will find them in the woods, in old yards, along the fences. It is little matter if no one knows their names. What is handsomer than a tangled fence row?

Scatter in a few trees along the fence and about the buildings. Maples, basswood, elms, ashes, buttonwood, pepperridge, oaks, beeches, birches, hickories, poplars, a few trees of pine or spruce, or hemlock,—any of these are excellent. If the country is bleak, a rather heavy planting of evergreens about the border, in the place of so much shrubbery, is excellent.

For shrubs, use the common things to be found in the wood and swales, together with roots which can be had in every old yard. Willows, osiers, witch hazel, dogwood, wild roses, thorn apples, haws, elders, sumac, wild honeysuckles, —these and others can be found in every school district. From the farm yards can be secured snowballs, spireas, lilacs, forsythias, mock oranges, roses, snowberries, barberries, flowering currants, honeysuckles and the like.

Vines can be used to excellent purpose on the outbuildings or on the school-house itself. The common wild Virginia creeper (shown on the right in Fig. 1566) is the most serviceable. On brick or stone school houses the Boston ivy or Japanese ampelopsis may be used, unless the location is very bleak. Honeysuckles, clematis and bitter-sweet

FIG. 1566.—A clump of weeds in the corner by the house—motherwort and Virginia creeper. How pretty they are!

are also attractive. Bowers are always interesting to children; and actinidia (to be had at nurseries) is best for this purpose.

Plants for decoration.—Against these heavy borders and in the angles about the building, many kinds of flowering plants can be grown. The flowers are much more easily cared for in such positions than they are in the middle of the lawn, and they also show off better. They have a back ground. Even a clump of weeds looks well when it is in the right place. . . . .

While the main planting should be made up of common trees and shrubs, a rare or strange plant may be introduced now and then from the nurseries, if there is any money with which to buy such things. Plant it in a conspicuous point just in front of the border, where it will show off well, be out of the way, and have some relation to the rest of the planting. Two or three purple-leaved or variegated-leaved bushes will add much spirit and nerve to the place; but many of them make the place look fussy and overdone.

CULTIVATION AND CARE OF THE BLACKBERRY.

IN starting to grow this favorite berry we must first consider its location, as most varieties are too tender to stand much exposure to either severe frost or keen cold winds; and consequently a windbreak of some kind is desirable toward the success of the bushes, carrying them through the winter without freezing down. This windbreak should be on the west side. As it will not only shield them from the cold frosty air in winter, but will also protect the bushes from the high winds when they are heavily laden with fruit.

Another important point towards its success is the soil, as some soils would not be suitable, such as hard clay, or wet ground. The Blackberry likes a warm sandy soil. They grow splendidly on a deep rich sandy loam, and will stand the dry weather better than on a light sandy soil, and perhaps grow rather larger berries.

But if it was possible to irrigate, I would choose the light sand as it is warmer, and getting plenty of moisture they would grow to perfection.

Now as to fertilizers for the soil. There is nothing better in my opinion than plenty of good unleached hard-wood ashes, stable manure well rotted, and nitrate of soda. In first setting the roots, and management of them after, I differ from most growers, setting

them much closer in the rows for the purpose of making a thick shade over their roots during the dry spells when the berries are growing and ripening, and helping to retain the moisture as long as possible. The rows should not be less than eight feet apart, and set two feet apart in the row, and afterwards allow them to thicken in the row as close as convenient to hoe. After the young canes get to a height of two or three feet, they should be pinched back so as to give them a stocky growth, form a fine bushy top and harden the the wood, so that it will stand our severe winters without injury. When spring comes do not cut them back a second time as it will seriously injure the formation of the fruit spurs or stems that grow out in the spring for the fruit to form on. Some cut out the old wood as soon as the crop is off, but I do not do so until the next spring, as I thinks it assists to protects the young canes and to hold the snow and leaves to cover the roots and keep the frost from doing them injury. There is a great difference in the hardiness of the different varieties ; I have tried several kinds, but the Agawam is only one that would stand our cold winters without injury ; it has more good qualities than any other variety of which I have any knowledge. There is one point in their ripening which is very important, as it has to do with their size and sweetness. Some think they are

FIG. 1567.—EARLY HARVEST BLACKBERRIES.

ripe as soon as they turn black; but that is a mistake, as it takes them two or three days to get ripe and sweet after turning black, and if they are left on the bushes until they are sweet, they are seedy and are more luscious to the taste. Never allow any grass or weeds to grow, but keep perfectly clean. If you cannot do that do not try to grow them as you will surely fail, for they will not grow in sod.

When the bushes get their load of green and ripening berries, the weight is too great for the canes to sustain and hold them up, and they must be assisted. It is a very easy matter to place a few posts through the centre of each row, bore a hole two inches from the top, split out the piece from the auger hole to the top, then draw a wire through on each side of the bushes, fasten both ends to the end posts, raise the wire and drop it in the slot at the top of the posts. In this way one row of posts carries both wires and the cost is light.

I think this is all the information necessary to grow and care for the Blackberry.—(Name of writer not given.)

PRUNING THE GOOSEBERRY.

THERE are one or two important points about the gooseberry which deserve consideration. It is fairly hardy, but thrives best when sheltered. Then, though good supplies of moisture are essential to its welfare, the soil in which it is planted must be well drained, if the best results are to be relied upon. Further, though it must be kept in check by pruning, to clip it all over, making it form a dense spurred-in hedge is an error that cannot be too strongly condemned, and this brings us to the all-important question of pruning. Whilst some advise one system and and some another, the best and safest plan will be found to be as follows:—Instead of shortening the shoots, except where they are too rampant, or work downwards into or towards the soil, remove the weak shoots wherever they are seen, and take care they are not chopped off, but removed as close to the old wood as possible. Generally speaking, the usual method of ensuring a well-shaped and evenly-developed head will produce good results, but if better fruit is desired then cut out and train the bush in the shape of a cup; by this plan you reduce the quantity, but the fruits will be much finer from having free supplies of air and sunlight let into the head of the bush. It will be found much better to thin out rather than to clip all round the head. Let the branches grow outwards, and remove all branches which cross, rub against, or entangle such as should be encouraged to grow out freely. In planting, do not set the bushes too closely together. If set in rows, let them be five or six feet apart, and the bushes should be five feet from one to the other in the rows. Nothing is gained by over-crowding, either with bush or hardy fruits, as plenty of air and sunlight are essential to successful cultivation and development.—*Bush Fruit Culture.*

THE SAN JOSE SCALE

FIG. 1568.—THE DELEGATION WHO DISCUSSED SAN JOSE SCALE.

AS has already been stated, this country has narrowly escaped the general introduction of this terrible insect from American nurseries. Before we were aware of the danger several large lots of trees were imported and distributed, that were affected by this tiny insect. In 1896 an orchard near the border, belonging to a member of our Association, Mr. Chas. Thonger, was found to be infested, and immediately our executive called upon both the Provincial and the Dominion Ministers of Agriculture to send competent men to examine and report.

A large number of fruit growers, accompanied by Dr. Fletcher, of Ottawa, and Prof. Panton, of Guelph, proceeded to Mr Thonger's farm, and found the report only too true, and that a large number of his pear and peach trees were infested. Our illustration shows the delegation, met under a grand old oak, to discuss the situation. Mr. Thonger is the prominent figure, while on his right are Prof. Panton and Dr. Fletcher; at his feet, Mr. D. J. McKinnon, of Grimsby, and at his left, Mr. W. M Orr, E. D. Smith, Mr. Armstrong, the writer and others. Strong resolutions were made, and sent to the Ministers of Agriculture, and as a result, every tree imported from the United States during the last five years is being carefully located and examined and if there be any trace of scale, utterly destroyed.

The superintendent of this work is Mr. George E. Fisher, of Burlington, a man who never allows difficulties to hinder him, and who is sparing no labor or expense, to make it sure that Ontario is clean of the ugly insect. The San

Jose Scale Act, of 1898 is well-known, and this is still being amended by the addition of the following sub section :

(*a*) If, in the case of an orchard or collection of plants, the inspector finds scale on plants located in several different parts of the orchard or collection, and decides that it is advisable in the public interest to destroy all the plants in such orchard or in any part or parts thereof and so reports to the Minister, the Minister may direct that an examination or inspection shall be made by an additional inspector, and upon their advice in writing he may direct that all the plants in such orchard or such collection of plants or in such part or parts thereof shall be destroyed without requiring that every plant in the said orchard or collection shall be first examined.

3. The owner or proprietor of any nursery shall not send out or permit any plant to be removed from his nursery without the same being first fumigated by hydrocyanic acid gas in accordance with regulations prescribed by order of the Lieutenant-Governor-in Council.

4. No person shall sell or dispose of or offer for sale any plant obtained, taken, or sent out from a nursery unless the said plant has previously been fumigated in accordance with these regulations.

5. In case the inspector finds scale in any nursery and so reports to the Minister, the Minister may thereupon inform, by writing, the owner or proprietor or manager of said nursery of the existence of scale in his nursery, and the owner or proprietor or manager of said nursery shall not thereafter permit any plant or tree to be removed from the said nursery until the inspector reports to the Minister that it is safe in the public interest to permit the said nursery stock to be removed after fumigation.

. This measure is extreme, but coupled with the Dominion Act, totally excluding all American nursery stock, is calculated to save our country from an invasion of this insect and make it perfectly safe for our readers to purchase freely Canadian stock from our Canadian nurseries. It costs a large sum of money to trace out all these importations and examine each tree microscopically, but it is well-worth the expenditure, if we are thereby saved from the threatened evil.

EARLY VEGETABLES.

CAULIFLOWER should be in as general use as is cabbage. Its good qualities merit its general use. Would you be without cabbage from year to year? Then why be without cauliflower?

Do you grow and use salsify, the oyster plant? Try it. If you have good success, and are as fond of it as some are, you will not let a spring pass without planting it.

If you like celery, try to grow it. Splendid celery can be grown but it requires thoughtful work.

For raising early vegetables, now is the time to begin to work. Make a hot bed, and have good sized hardy plants ready for the open ground as soon as the weather will admit of their being put out. Place several loads of horse manure in a flat-topped pile, and give it a good wetting. After several days it will be steaming vigorously, and should be forked over into a similar pile and wet again. After this process has been repeated two or three times, make the manure into a solid bed two feet deep, place a frame on the bed, and fill in with four inches of good soil well pulverized. Sow your seeds, cover lightly, and keep the soil moist. Cover the frames during nights and cold days with glass sashes if you have them, but, if not use the best covering you have, such as old carpet or wagon sheet. With this little care, you may have early vegetables, They grow better during early summer before it gets hot and dry, and tomatoes will continue to bear till frost, if irrigated, or if the drouth is not severe.

C. P. HARTLEY, *Kansas.*

SUCCESSES AND FAILURES IN FRUIT GROWING.

FIG. 1569.—MR. MCKNIGHT'S RESIDENCE.

SOME time ago we gave our readers a sketch of Mr. R. McKnight, of Owen Sound, and recently we received the accompanying photographs of his grounds, that of the house showing a short cut to the town, the hedge on the right being privet and that on the left, cedar (the native arbor vitae). Behind the hedge to the right is the small fruit plantation, and behind the house the orchard. The carriage drive, which is not shown, enters on the west side of the lawn, and is flanked on one side by a row of Austrian pines, and on the other by one of spruce, now nineteen years planted.

The other picture, Fig. 1570 ,shows a sauntering place along the east of the orchard, and on the brow of the hill; any part of which commands a fine view of the town, harbor and lake.

The row of evergreens on the left is a spruce wind break and joins the eastern boundary of the orchard, along which you will notice a privet hedge, which has outlived both its usefulness and its beauty. The trees now partly overshadowing it, the maples on the right, are second growth volunteers, and stretch along the immediate brow of the hill. The trees in the distance are a part of about ½ an acre of the original bush; they make a good background to the place, and shelter the orchard from the north wind. This is the only piece of original bush within the limits of the residential part of the town.

Mr. McKnight writes as follows:—"I have cultivated about all the kinds of

fruit grown in this neighborhood, large and small, with the average degree of success. My apple orchard contains about 40 trees 25 years old, half dwarfs, all of them branching within 4 to 5 feet off the ground. I was once told by a prominent fruit grower of the Niagara peninsula, that the Gravenstein was too tender a tree to succeed as far north as Owen Sound. My experience of them leads me to differ with him in this view. I regard it as amongst the hardiest. I have 4 of them in my collection, the rest being make up of Spys, Baldwins, Spitzenbergs, Greenings, Canada Red, Maiden's Blush, Talman Sweets, Snows and Astracans. My Gravensteins are the largest, finest and most symmetrically formed of any trees in the orchard. Perfectly hardy, not a twig of them has ever shown the effect of frost, while I have had Greenings killed outright by it.

I went out this morning and measured the relative sizes of the trunks of several kinds of trees, the measurement was made in all cases 2 feet from the ground: here is the average result:

Gravensteins,	52	in. in	circumference
Spys,	43	"	"
Talmans,	36	"	"
Spitzenbergs,	41	"	"
Greenings,	47	"	"
Maiden's B.,	42	"	"
Astracan,	42	"	"
Canada Reds,	44	"	"
Baldwins,	47	"	"

The Gravensteins more than hold their own in the size and symmetry of branches and head, the fruit is unsurpassed in size, form and flavor, by any fall apple grown. By the way, the Ontario I got from the Fruit Growers' Association some 12 or 14 years ago has not proved thrifty with me. It fruits well and the apples are clean skinned and uniform in size. But the tree itself

FIG. 1570. VIEW ON THE GROUNDS OF MR. MCKNIGHT.

is not vigorous. It does not make sufficient growth in a year to enable one to get a decent scion from it. It is not favorably situated, however. My neighbor got one at the same time, and it is a much better and larger tree than mine."

Mr. McKnight is Registrar for the County of North Gray, and First Vice-President Owen Sound Horticultural Society.

THE APPLE CANKER.

From a paper read at the last meeting of the W. N. Y. Horticultural Society.

THE DISEASE FOUND.—At last year's meeting of the Western New York Horticultural Society, the committee on botany and plant diseases reported the prevalence of apple canker in the orchards in Western New York, and a note on the subject from M. B. Waite, Washington, D. C., was read. Last Spring a request was received at the Geneva Experiment Station from Chapin Brothers, East Bloomfield, N.Y., that the dying of trees in their orchards be investigated The visit revealed the fact that of 80 acres of once fine orchard belonging to one of the brothers, 30 has been taken out, and one-half the remainder were not worth a shilling. Of the 45 acres originally in the other orchard, only about 20 are left that are of any value. It is evident that this wholesale destruction is largely due to the canker. The disease has been noticed for the past six or eight years, but it has increased rapidly in the past three or four years. Twenty-Ounce is most susceptible, Baldwin, Wagener, Greening and King next. Talman Sweet seems practically free; trees on lowland and on ground at all wet, suffer worst. Trees in outside rows are freer from canker than those in less exposed situations. The orchard is 40 years old, but the trees that are free from disease are thrifty and in their prime. The orchard has been cultivated far more intelligently than the average orchard. No crops have been taken, trees have been pruned regularly, and the orchard was thinned 15 years ago. It has been sprayed from the first with insecticides but not with fungicides.

What It Is.— Inquiries concerning the disease have been received from various sections of the State and its prevalence is reported in widely separated localities. It seems to be common in most parts of the State, and in a number of instances, is doing serious damage. It is also prevalent in the Southern States, on the Pacific coast, in Michigan and Indiana. The swollen appearance of the limbs, the rough, blackened bark, and in many instances bare wood, black and decaying, are characteristics of this disease. The cankers are much more prevalent on mature than on young trees, the latter being evidently exempt from the attack.

Old age and neglect seems to favor the disease, though thrifty trees may be ruined by its attacks.

Its Life History.—Investigations of the nature and life history of the disease were at once begun. A series of cultures were made from the diseased bark, and various forms of fungi were obtained. Two forms constantly appeared in the cultures, and led to their being separated and being grown in a pure state in test tubes. One form proved to be a toadstool that is very common on dead bark

and wood in the orchard, and the other was unknown Inoculations were made with both forms, and in a few days there was an area of discolored bark around the place of inoculation in each case where the unknown fungus had been inserted. Further inoculations were followed by the same results. By the close of the season, several of the seedlings were nearly girdled with wounds three or four inches in length, while on the trees, a portion of the wood was laid bare and the dead areas of bark, characteristic of the disease, were produced. Further experiments seemed to prove that the apple canker is caused by the fungus that produces the black rot of the apple, pear and quince. Some blighted apple twigs were examined, and it was afterward found that mature spores of the black-rot-fungus were abundant on them. Some pear trees, also, which were found to be in a dying condition, were attacked by the same fungus. The spread of the disease was from the top downward. Fruit of the same fungus has also been found on twigs of some quince trees that grew by the side the of pear trees, although the injury was slight. The canker has also been found on a quince tree in the Experiment Station orchards, the appearance and effect being much the same as on the apple trees. The disease was also found to be abundant and doing serious damage in the large orchard of Maxwell Brothers, near Geneva. A series of experiments was undertaken to prove that this fungus occuring on these different species of trees is the same and identical with the common black rot of the fruit.

What Can be Done?— Strong evidence seems to be produced that a well-known fruit disease will also attack and do serious damage to the trees themselves. Black rot of the fruit of apple, pear and quince can be held in check with Bordeaux mixture, and there is no reason to think that this standard fungicide will fail in this case. Orchards that have been well sprayed with Bordeaux mixture for several years past, are much freer from the disease than those not sprayed with fungicides. The disease seems to prefer mature trees, and it lives best in the rough bark, till it gains an entrance to the cambium. By removing or preventing the formation of this bark by spraying the limbs with Bordeaux mixture, one favorite breeding place of this and possibly other plant diseases is removed. By keeping the limbs protected with Bordeaux mixture, all spores that chance to fall on them will be destroyed. Canker spots once formed cannot be cured, but such limbs should be removed wherever practicable. The rational way to combat apple canker is to spray the limbs with Bordeaux mixture as a preventive. This may be done when the trees are sprayed for apple scab, and an earlier spraying when the growth first starts, would do no harm.—W. PADDOCK, of Geneva, before W. N. Y. H. Society.

FERTILIZING ORCHARDS.

SIR,— It is becoming a matter of the greatest importance to our fruit growers to understand not only what substances may be useful as manures but also how to apply them in the best manner so far as they can be made profitable.

There are numerous commercial fertilizers now on the market advertised for special erops with guaranteed analysis, etc., but in many cases with a little care and judgment and some knowledge of what the land and trees require, many dollars may be saved in collecting and preparing the crude matter always found about our homes or near bye.

It may be necessary for market gardeners, near our towns and cities to purchase these fertilizers to force a quick and succulent growth in early vegetables, but the orchardist has not to consider the forcing of an early growth so much as he has the placing of his land in a good state of cultivation with sufficient quantities of humus to keep up an active state of nitrification in his soil and also a liberal supply of potash and phosphoric acid combined with nitrogen, forming the three elements so necessary to producing the full grown perfect fruit that our best markets now demand; for our soil becomes more rapidly exhausted of these three elements than any other of the ash and volatile parts of plants and trees.

To those who have sufficient stable manure, I might say, that excellent results can be obtained from the annual application of 5 or 6 tons per acre spread during the winter or early spring, over the entire surface of the ground, and after the first ploughing, which should be done in the spring, just so soon as the ground ean be worked, a dressing of 20 or 25 bushels of wood ashes followed by frequent cultivating, up to August 1st to 15th at which time the working of the soil should cease so as to check succulent growth and give the new wood time to ripen up before winter.

Where swamp muck can be obtained a good manure can be made by the following method: Draw your muck to a convenient place and to every load mix one bushel of fresh, unslacked lime; spread out your muck in a thin layer and spread on the lime, then a layer of of muck and lime alternately, just dampening the whole with animal urine or barnyard drainage if it can be obtained, or water will do, putting it as the layers are built up.

After it has stood a few days it should be turned and intimately mixed by commencing at one side of the pile and cutting down from top to bottom with a spade and throwing up into a conical heap. Now, just before you apply this to the land take one barrel of dissolved bone and ashes (how to dissolve the bone will be described presently) to every five loads of muck and lime mixing it by putting up in alternate layers of muck and bone and then cut down to the full depth of the side of the pile when shoveling into the wagon, by which means its becomes well mixed. Spread over the entire ground of the orchard in April or May, at the rate of eight or ten loads to the acre, and thoroughly incorporate it with the soil by cultivation.

This will be found an excellent manure for bearing orchards, besides the the humus added to the soil the lime acts upon and corrects the acid present in the muck and allows the ferments of nitrification to proceed, liberating the nitrogen, potash and phosphoric acid

which is found in muck in varying quantities; and by the addition of the dissolved bone and ashes you add an ingredient very rich in phosphoric acid and potash beside some nitrogen, all of which is mostly available as plant food as soon as applied to the soil.

Every farmer and fruit grower should have a bone barrel or box where all bones should be put, and one will be surprised at the quantity they will collect in a short time. When a bushel or two have been collected and you have a spare hour or two for one of the boys, have him break them up in small pieces, which is very easily done by holding them over an old anvil or heavy piece of iron, and breaking them with a two pound hammer. Now take a sugar or flour barrel and put in a layer of fresh dry ashes (those made from elm wood are preferable), put a thin layer of broken bone on top of the ashes, filling the spaces between the bone with ashes shaken in, then bone and ashes, finishing off with a thick layer of ashes. When your barrel is full pour on water enough to dampen the whole, being careful not to leach any off, and in a short time the mixture will begin to heat and in a few weeks you can put a spade through the mixture, the bone having all become as soft as cheese. Now by packing the bones as fast as collected, one is able to keep a stock of dissolved bone on hand for use when required.

Now to those who have not got the necessary material at hand to prepare their own compost heap, and have to depend upon commercial fertilizers, it is not necessary to go to the expense of buying so-called complete fertilizers, but rather buy your phosphoric acid and potash, and grow clover to supply nitrogen.

Three or four hundred pounds of Thomas' Phosphate powder, 100 hundred pounds muriate of potash, and 20 pounds crimson clover per acre, or 200 pounds pure ground bone, 100 pounds muriate potash, and 20 pounds clover sown about the 1st of August, the ground being kept in a perfect state of cultivation up to that date, and cultivation commencing again early in the spring, and repeating annually gives the necessary potash and phosphoric acid and the clover the nitrogen and humus.

Now that we have supplied the elements to the soil necessary for the growth of our trees, we must not consider our work complete, for we have still the carbon to consider. About one half dry weight of vegetable matter consists of carbon, and it is almost wholly obtained from the carbonic acid that in the air, only a small portion possibly in the form of carbon dioxide present in the condition of humus, being at the disposition of the tree as plant food from the soil; thus the principal source of carbon comes from the atmosphere and is obtained by the tree through the leaf pores, breathing pores, or stomata with which the mature leaf is provided in vast numbers. By means of these the inter-cellular spaces in the interior of the leaf are brought into direct communication with the outer atmosphere where the mineral matters, nitrates, etc., brought from the soil by the action of the sap, combine with the carbon from the air, and, after the chemical combination of the elements has taken place in the leaf, it passes back through the tree, building up the cell tissue and forming new wood, buds, bark and leaves.

In the air there is somewhat less than one part by volume of carbonic acid gas to 3,000 parts of air (oxygen and nitrogen) so it is very necessary to the healthy development of a tree that it has an abundance of foliage, and that the same is kept in a healthy condition with

its numberless stomata or breathing pores in active work.

When the foliage is spotted with fungi or bitten by insects, the leaf loses its functions either wholly or in part, and, when a leaf becomes covered with fungi, cell tissue is disorganized and it is as useless as though it were off the tree. Thus we see that no amount of fertilizing through the soil will give satisfactory results unless the foliage be kept clean and healthy and in the best possible condition to absorb the carbon from the atmosphere, and to do this we must spray and spray thoroughly, both with fungicides and insecticides.

Practical illustrations in spraying and the materials used have been made in almost every corner of the province, thanks to the energy and interest taken in our fruit growers by the Minister of Agriculture for Ontario, Mr. John Dryden and his energetic helpers, and there is very little, if any excuse now for not knowing when and how, and what to use in spraying your orchards.

SUMMARY.

Cultivate the soil thoroughly and frequently to retain the moisture necessary for the sap flow that holds the elements of plant growth in solution. Supply humus to keep up active nitrification. Supply those elements of plant food of which the soil is most rapidly exhausted.

Spray your trees thoroughly and at the proper time to check fungi and insect depredations, and the result will be rapid and healthy growth, abundance of dark green foliage, fruit buds fully developed, and a crop of full grown perfect fruit with pleasure and profit to the grower.

HAROLD JONES.

Maitland,
Mar. 8th, 1899.

EXPORTING TENDER FRUITS.

IN our Report for 1898 our readers will find a very interesting address by Prof. Robertson on this subject, which is of the greatest moment to the more enterprising of Canadian fruit growers. From the experience of the cold storage shipments of 1898 it would appear that the possibility of success is within reach. As Mr. Robertson says:

"I have learned by two years' experience, that the British consumer and importer does not care a snap of his fingers for the fancy names of highly esteemed kinds of fruit. *Soundness* is his first consideration, second, their *keeping qualities*, then *nice appearance* in regard to color, size and shape, and lastly, he looks for as *nice flavor* as you can give him.

"The California pears that go to England are sold particularly well because the receivers there say they can keep them for two weeks after they get them. Anybody in Canada knows that a Bartlett is a joy to eat compared with a tough old tasteless pear from California, still the pears from California would fetch nine shillings a case whereas our best would fetch only six shillings, because the California ones would keep."

Tomatoes, peaches and grapes made unsatisfactory returns, but one case of Centennial peaches, sent by the writer, which variety is a clingstone and worthless so far as quality is concerned but is firm of flesh, and of fine appearance, actually sold for 13/ or nearly $3 25. The case contained about 60 peaches.

We believe there is hope of splendid success in all these fruits, providing we can once decide upon the variety which will carry. Even in grapes we do not despair, for some cases of Lindsay and Wilder sold well, and would, no doubt, soon create a fine demand.

We believe it is the intention to have these experimental shipments continued one more season, after which, no doubt, they may be safely left to the ordinary course of trade for development.

NUMBER AND YIELD OF APPLE TREES IN OUR PROVINCE.

IN the last Report of the Bureau of Industries we have a step in advance for the benefit of the fruit grower, in a table showing the number and yield of apple trees in Ontario in 1896 and 1897. We are often asked by outside correspondents for this information in previous years, and need these statistics, not only of apples, but of other fruits also.

a decrease in the number of apple trees under fifteen years old, and the number reported is now only 3,435,018, or 113,040 less than in 1896. The average yield per tree was small, being but 2.19 bushels per bearing tree (fifteen years old) compared with 9.45 bushels in the previous year, and the total yield amounted to only 13,343,720 bushels, as against 55,895,755 bushels in 1896.

Districts.	Apple Trees.				Yield of apples in 1897.		Yield of apples in 1896.	
	15 years and over.		Under 15 years.					
	1897.	1896.	1897.	1896.	Bushels.	Bush. per tree.	Bushels.	Bush. per tree.
Lake Erie	1,161,558	1,068,063	493,210	515,176	2,154,517	1.86	13,087,056	12.25
Lake Huron	772.270	729.325	392,187	395,319	1,452,401	1.88	7,236,435	9.92
Georgian Bay	448,519	442,216	393,146	417,074	924,294	2.06	3,303,025	7.47
West Midland	1,095,234	1,075.992	445,147	448,223	2,174,640	1.99	11,804,969	10.97
Lake Ontario	1,766,184	1,739,191	826,253	875,356	4,064,148	2.30	14,273,665	8.21
St. Lawrence and Ottawa	582,853	576,921	554,619	557,010	1,723,251	2.96	4,360,144	7.56
East Midland	263 756	273.649	261,742	271,514	823,234	3.12	1,798,647	6.57
Northern Districts	12,025	8,549	68,714	68,386	27,235	22.6	31,814	3.72
The Province	6,102,399	5,913,906	3,435,018	3,548,058	13,343,720	2 19	55,895,755	9.45

An increase occurred in the number of apple trees over fifteen years old in every group except the East Midland district, there now being 6,102,399 trees of that age in the Province, or 188,493 more than was reported in the preceding year. Every group, however, shows

The following table presents the acreages in orchard and garden, and in vineyard, in 1897, by county groups and for the Province, together with the total acreage of these in the years 1895, 1896 and 1897 :

Year.	Lake Erie.	Lake Huron.	Georgian bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
	acres.	acres.	acres.	acres.	acres.	acres.	acres	acres.	acres.
Orchard & garden.	62,534	35,817	25,217	57.317	91,516	34,207	16,792	2,941	326.341
Vineyard	3,700	636	553	513	5,212	368	72	46	11,100
Totals. 1897	66,234	36,453	25,770	57,830	96,728	34,575	16.864	2,987	337,441
Totals. 1896	61,496	34.514	24,224	56,382	94,036	31,066	15,744	2,660	320,122
Totals. 1895	60,141	33,210	22,729	55,442	91,863	30,454	16,813	2,135	312,787

The Lake Ontario and Lake Erie groups lead in the acreage in fruits. Over eleven thousand acres are now given to growing of grapes in Ontario. The total rural area in fruit is 337,441 acres, or 17,319 acres more than in the preceding year, every district sharing in the increase.

NEW YORK FRUIT GROWERS—II.

PEAR Culture for Profit was treated on by Mr. D. K. Bell, from whose paper the following notes are taken.

Soil and Varieties.— I have found that the best soil for pears is a clay loam, that is, where the loam overlies a clay subsoil. Pears will also grow and produce well on what is known as a gravel loam, with a clay subsoil. The trees will not do well on peaty or black muck soil. These tend to unhealthy growth, and the fruit is of inferior quality. If the soil is not naturally dry, it must be made so by tile drains. Trees will not thrive in ground which is soaked with water. Do not locate an orchard on low land, but select a situation where there is plenty of sunshine and free circulation of air. Where the orchard is exposed to west and northwest winds, I favor windbreaks.

In selecting trees, accept only those that have good, sound roots, clean bark, and have made a strong growth during the past season. The following varieties are to be preferred for a commercial orchard: Standards, Clapp's Favorite, Bartlett, Seckel, Sheldon, Bosc, Clairgeau, Anjou and Winter Nelis. On the quince, Howell, Superfin, Duchess and Anjou. I will add Kieffer, although it is not a favorite of mine. The varieties named ripen in succession.

Working and Planting. — The soil should be thoroughly worked the year before setting out the orchard. This can best be done by planting corn, potatoes, or some other hoed crop. The grade will then be as nearly as possible natural, so that the trees may be set at a uniform depth in the ground. Before the tree is placed in the ground, it should be trimmed of all surplus and damaged roots, and the top should be headed back. This heading should be, at least equal to the trimming of the roots, and it will do no harm if it is a little more. I head back to one or two buds, believing that the remaining buds will push forth stronger than if a larger number are left. The hole for the tree should be dug large enough so that the roots can be spread out without being bent. If some of the surface soil is thrown in first, it will do no harm. Care should be taken not to plant too deep. Two inches below the collar, for dwarfs, and even with the collar, for standards, is sufficient. Nothing is gained in too deep planting, as, in the cold soil, the roots will eventually come to the surface. Fine soil should be well sifted in among the roots, so that the space will all be filled. For Bartlett, Clairgeau, Sheldon, Bosc and Winter Nelis, 15 x 20 feet apart is sufficient; Anjou, Lawrence, Seckel and Kieffer should be 20 to 25. On the dwarf, 15 feet is sufficient for all varieties.

The young orchard should be thoroughly worked by planting it to some hoed crop. If the fertility of the soil is such that it will produce a good farm crop, no manure or other fertilizer need be applied for the first few years, after which the ground should be enriched by applying potash, phosphoric acid and

nitrogen, the last furnished by plowing under Crimson clover or well-decomposed barnyard manure.

Treating the Tree.—At about five years, the trees will begin to show signs of fruiting, which should be regulated by trimming. The trees should be trimmed systematically, according to the form that the grower has decided upon. I prefer the pyramid, and trim to a leader. This is done by cutting the lower branches to four or five buds, those higher a little shorter and so on to the leader, which should be left longer. The cutting back and thinning out must continue annually, to obtain the highest results. Whether this is done closely, must depend upon the variety and the vigor of the trees. Some trees have a tendency to set fruit more than do others. Trimming should be done during the dormant season which, in Western New York, is between Nov. 1 and March 1. No trimming should be done after the sap starts. If the tree has become stunted and exhausted, from overbearing or other cause, it can, if not too far gone, be revived by cutting back into the old wood, and allowing the tree to make a top of new wood.

After the trees have come into full bearing, which is at the age of from eight to twelve years, no farm crops should be grown among them. Plow the orchard during May, but never more than three inches deep; I do not approve of plowing any deeper, as it cuts off many of the pear roots. Then move the soil often by the use of a cultivator or spring-tooth harrow. By this treatment, the soil will be kept in mellow, moist condition. Under no circumstances should it be allowed to become hard and cracked.

Feeding and Thinning.—The orchard should now be in full bearing, and the fertilizers should, consequently, be applied more liberally; I cover my orchard every second year with a light covering of well rotted barnyard manure. In the alternate years, I plow under Crimson clover, adding to this a liberal amount of muriate of potash, applied by sowing broadcast, by hand, and worked in by the cultivator. I have sprayed for the last six or eight years with varying success. I believe in spraying, when necessary, but the person doing the work should have a knowledge of what he is spraying for, what to use, and how and when to use it. This is important to insure success.

The thinning of fruit is absolutely essential, in many cases. The work should be done early in the growing season and, wherever a tree is overloaded, a sufficient amount of the fruit should be removed to relieve it thoroughly. The money expended in thinning is amply repaid in the protection of the trees, and the superior quality of the fruit. Thin whenever a tree is overloaded, and bear in mind that, with judicious thinning of the fruit, and careful precautions to prevent the trees from overbearing, annual crops will be the result. Nearly all kinds of pears should be gathered at least one week before they naturally ripen on the trees, as pears allowed to ripen upon the tree, lose much of their substance and quality.

TOMATOES FOR EXPORT.

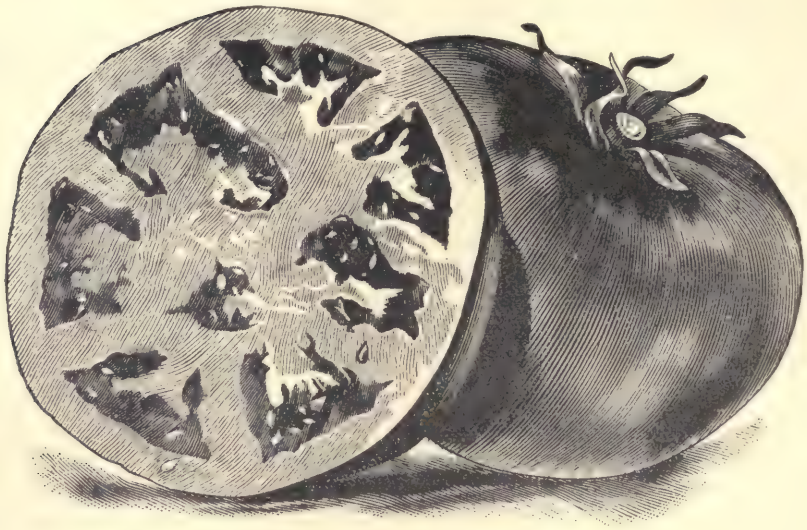


FIG. 1571.—HONOR BRIGHT TOMATO.

WE are very anxious to find a variety of tomato that may be carefully recommended for export. So far the Ignotum has been the most generally satisfactory variety we have tried, for it is a wonderful yielder, and carries fairly well. Dwarf Champion and Dwarf Aristocrat were a perfect failure, and were to blame for the bad reports of results last year in shipping to Great Britain.

We notice that Mr. T Greiner, gardener near Niagara Falls, N.Y., writes in Farm and Fireside most favorably of Mr. Livingston's new tomato the Honor Bright, as follows :

The illustration gives a pretty good idea of this new type, which the Livingston's gave us last year. The following is the catalogue description, and it fits like a glove : "The foliage is yellowish green, and the fruit grows in clusters of from three to five large tomatoes. The color when fully ripe is a rich, bright red, but during growth it makes several interesting changes in color, first light green, then an attractive waxy white, then lemon, changing to rich, bright red at maturity. It is one of the most attractive varieties grown. The quality is very fine, flesh thick and mealy, with small seed-cavities. The skin never cracks and the fruits are so solid that if picked when white they can be shipped in barrels like apples, and after a period of three to four weeks will be solid and ripened to rich, bright red." My friend, the editor of the New York (former Orange County) Farmer, speaks in terms by no means flattering of this sort, and seems to consider it a curiosity. I do not agree with him, and shall plant quite largely of it. But don't plant it for an early sort. It is rather late, as the fruit requires considerable time to go through all these changes in color. I recently saw a report from London, England, saying that the shipment of tomatoes from here had not proved a success, and surely not profitable to the shipper. The fruit in most cases was allowed to get too ripe before

being gathered and packed for shipment. With the Honor Bright it would be easy to avoid mistakes, as the color shows the exact stage of progress toward ripening. I think if picked when in the white stage they could be safely shipped across the water.

PEAR GROWING.

I SEE by the Feb. No. of HORTICULTURIST, on page 80, Question 1043, from W. B. Stephens, on pear growing. Perhaps my 20 years' experience would be acceptable, as I have tested and have now growing over 100 varieties, some of which have not fruited yet.

I find Duchess d'Angouleme a good pear, but not a good yielder. I have them both in dwarf and standard. Beurre Clairgeau bears splendidly, but requires thinning on standard trees to get the proper results in size and color. The Beurre d'Anjou, I have both dwarf and standard, the former bears fairly well, fruit of good size and good quality, but the standards, of which I have about 20 trees, some 20 years planted, have not produced as many bushels as years they have been planted, but we have some very fine specimens and of even size. They do not yield enough per tree to compare with Louise which always bears abundantly and sells here at from $4.50 to $6 per bbl.; and if picked at the proper season ships better than the Anjou.

I have made more money out of the Kieffer, however, than any other variety I grow, but they must be thinned from 200 to 600 per cent. to get the best results, as they are the most persistent bearers we have so far tested, besides fruiting every year, and if properly thinned bear a fine, large, beautiful fruit. If properly ripened the Kieffer is of fair flavor and excels many other sorts for canning.

If Flemish Beauty can be grown successfully at Owen Sound, I would strongly recommend them as a fruit that would ship well and please the customers, as well as being productive and hardy and good quality of fruit, if it can be grown free from the spot or scab.

We have succeeded in growing clean fruit only by persistently spraying with Bordeaux mixture. There are two or three other varieties of late introduction, which I think will prove excellent, viz., Rutter, Comice and Idaho. So far as I have tested them they are hardy, large size, good color and excellent quality when properly ripened, and I think when better known will be highly appreciated.

The Dempsey is proving itself a good yielder, large size and of first-rate quality, much superior, in my opinion, to the Duchess d'Angouleme, which it much resembles.

With regard to the last clause of the question, there is a Mountain Ash grafted about 12 years ago within 80 rods of where I am writing. It has often fruited, but the fruit is invariably small, warty, sour and no good. The scions used were Bartlett and Flemish Beauty.

The varieties I have found to be the most profitable for the last 9 or 10 years are Keiffer, Bartlett, Louise, Lucrative and Clairgeau; any of which would ship to England if properly picked and packed.

R. L. HUGGARD.

Whitby.

NOTE.—We are a little doubtful about the Idado fulfilling expectations, from our experience at Maplehurst.—Ed.

GRAFTING THE GRAPE.

SHOULD our experimental shipments prove that Wilder and Lindley, Agawam andSalem, for example, are varieties of grapes that may be exported with profit to Great Britain, and that such varieties as Worden, Concord, Niagara and Brighton are unsuitable for that market, it will be necessary to graft over some of our large vineyards to these varieties. With this in view we give a simple method of doing this work, given some time ago by a writer in American Gardening.

To prepare the stock, remove the earth from six to eight inches in depth

FIG. 1572.

GRAPE GRAFTING SAW (WAGNERS PATENT).

around the vine. With a common handsaw cut it off at a convenient knob or knuckle, as shown at A in i lustration, three to six inches below the surface of the ground. Then cut a number of kerfs diagonally across the knob with the grafting saw. Be sure that every kerf is entirely clean, and free from chips, sawdust, etc. Now select a cion to fit the kerf. If it has a crook or angle like that shown at B, all the better. Cut a thin piece from each side directly below the middle bud. The cut portion of the cion should fit snugly into the kerf. Remove the bark from back of cion, so that this part will appear as shown at C. Then press it into the kerf, driving it snugly in place by a light tap or two with the wooden handle of the knife. Neither tying nor waxing is required. We always like to put a number of cions in each stock; the more we put in, indeed, the better are our chances, although we care only for one to make good growth. The

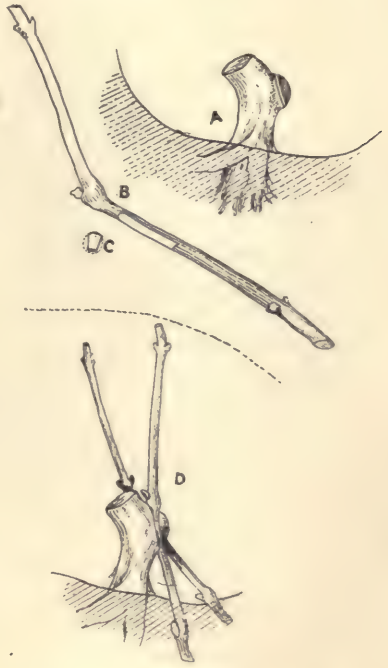


FIG. 1573.

cions after insertion appear as shown at D.

The covering of stock and grafts should be done with great care. Pack the earth well about the lower ends of the cions, and between them and the stock. Cover to top of cions, making a broad hill. If a quantity of sawdust is put on top, it will help to keep the soil moist, loose and cool. Often the buds start and then die down again. Usually the secondary buds are the ones that make the growth; they start after the first buds have given out. After the cions have grown six or eight inches, remove all canes starting from the stock, but do not disturb any of the first year's growth of the cion. The second year, if too many cions grow, cut off what you do not want. This method has given excellent results all through the grape districts of Western New York.

HOME MAKING.

FIG. 1574.—

THE time is come when we in Canada need to pay more attention to the surroundings of our homes, and seek to make them more in accord with the principles of good taste.

Many a person will build a fine house, faultless from an architectural point of view, and wholly disregard the setting of the same. Old ugly building may be in full view, beautiful landscape hidden, delapidated fences may surround it, and a yard unkept and untidy.

The surroundings are next in importance to the house itself. Better a plain old fashioned house, with a fine lawn and artful planting of trees and shrubs, than a most ornate building with no taste in its surroundings. This part of home making is sadly neglected with us in Canada, not always from lack of means, but more often from lack of taste in landscape art. It is with the object of overcoming this lack in our rural homes, where the conditions are so favorable for making beautiful homes, that Prof. Bailey has written such bulletins as No. 161 on Annual Flowers, from which we make the following extracts.

FIG. NO. 1575.—THE OPEN-CENTERED YARD.

Flowers should be accessories.—The main planting of any place should be of trees and shrubs. The flowers are then used as decorations. They may be thrown in freely about the borders of the place, not in beds in the center of the lawn. They show off better when seen against a back-ground: this back-ground may be foliage, a building, a rock, or a fence.

Where to plant flowers is really more important than what to plant. In front of bushes, in the corner by the steps, against the foundation of the residence or outhouse, along a fence or a walk,—these are places for flowers. A single petunia plant against a background of foliage is worth a dozen similar plants in the centre of the lawn. Too many flowers make a place over-gaudy. Too much paint may spoil the effect of a good building. The decoration of a yard, as of a house, should be dainty.

The open centered yard may be a picture; the promiscuously planted yard may be a nursery, or a forest. A little color scattered in here and there puts the finish to the picture. A dash of color gives spirit and character to the brook or pond, to the ledge of rocks, to the old stump, or to the pile of rubbish.

A flower garden.—But the person may want a flower garden. Very well; that is a different matter. It is not primarily a question of decoration of the yard, but of growing flowers for flowers' sake. It is not the furnishing of a house, but the collecting of interesting and beautiful furniture. The flower

FIG. NO. 1576.—A DAINTY EDGING OF FLOWERS.

garden, therefore, should be at one side of the residence or at the rear; for it is not allowable to spoil a good lawn even with flowers. The size of the garden and the things to be grown in it must be determined by the likes of the person and the amount of time and land at his disposal; but a good small garden is much more satisfactory than a poor large garden. Prepare the land thoroughly, fertilize it, resolve to take care of it, select the kind of plants you like; then go ahead.

Plants for screens.—Many annual plants make effective screens, and covers for unsightly places. Wild cucumber (or echinocystis), cobea, and sweet peas

may be used to decorate the tennis screen or the chicken-yard fence. The alley fence, the smoke-house, the children's play-house, may be screened with morning glories, flowering beans, and other twiners and climbers. The windows may be screened and decorated by vines grown either in the ground or in window-boxes.

Efficient screens can be made of many strong-growing and large-leaved plants, of which castor beans, sunflowers, cannas, tobacco and other nicotianas, striped or Japanese corn, are the chief. But it is not the mission of this bulletin to report upon foliage plants.

The kinds of annuals.—In the selection of the kinds of annuals, one's personal preference must be the guide. Yet there are some groups which may be considered to be standard or general-purpose plants. They are easily grown almost anywhere and are sure to give satisfaction. The remaining plants are mostly such as have secondary value, or are adapted to particular purposes or uses.

The groups which most strongly appeal to the writer as staple or general-purpose types are the following: Petunias, phloxes, pinks or dianthuses, larkspurs or delphiniums, calliopsis or coreopsis, pot marigold or calendula, bachelor's button or Centaurea, Cyanus, clarkias, zinnias, marigolds or tagetes, collinsias, gilias, California poppies or eschscholtzias, verbenas, poppies, China asters, sweet peas, nemophilas, portulaccas, silenes, candytufts or iberis, alyssum, stocks or matthiolas, morning-glories, nasturtiums or tropaeolums.

Annual flowers possess a great advantage over perennials in the fact that they appeal strongly to the desire for experiment. The seeds are sown every year, and there is sufficient element of uncertainty in the results to make the effort interesting; and new combinations can be tried each year.

SHRUBS FOR HOME GROUNDS.

PLANT a few small shrubs near the house, so that the foundations of the house will be screened, and the house seem to rise out of its surroundings. The choice of shrubs depends somewhat on the soil and location. There are a great many shrubs that are very appropriate for planting on the grounds, but only a few will be named here.

Common Lilac—Syringa Vulgaris.—This is one of the commonest and most highly praised of garden shrubs, and one that has given rise, either by natural variation or by crossing with other species, to a great number of superior forms. The colors range from white to various forms of lilac.

Syringa Persica.—This is a distinct small growing species, with slender straight branches, and lilac or white flowers produced in small clusters. The form bearing white flowers is named Syringa *persica alba;* and there is one with neatly divided foliage, Syringa *persica lanciniata.*

Philadelphus.—This is a genus of shrubs which are remarkable for the abundance of white and usually sweet scented flowers they produce. They will thrive on almost any good soil, and require no special treatment. Philadelphus *coronarius*, Philadelphus *tomentosa*, Philadelphus *gordanisnus* are all large growing bushes, and give a succession of bloom.

Honeysuckles or *Lonicera*, are all of the readiest culture, and succeed well even in poor soils. There are a large number of species, some vining, and some of a sturdy bushy habit. Lonicera *fragrantissima* blooms very early, and is very fragrant. It retains its leaves nearly all winter. Lonicera *tartarica* produces white and pink flowers in the spring, which are as attractive as the blooms.

Berberis Vulgaris also produces attractive flowers in the spring and scarlet fruit in the fall.

Spireas are excellent shrubs, and make very good low screens, and also give a beautiful display of flowers. Spirea *Thunbergii*, Spirea *Van Houttei*, and Spirea *reversiana* give a succession of blooms.

Deutzia gracilis and Deutzia *crenata floraplena* are very compact shrubs, with close spikes of very attractive flowers.

Kansas Agricultural Coll. Bul.

Floral Hints

LEAVES CURLING.

FIG. 1577.

THE leaves of the Tuberous Begonias, Gloxinias, Fuchsias, Roses and many other plants will curl and become unsightly, when attacked by the red spider. This pest thrives in a dry, hot atmosphere, and can only be kept from becoming troublesome by evaporation, and the free use of the syringe. It spins its almost invisible web upon the under side of the leaves, and causes the leaves to curl and appear rusty. When not numerous, the pest may be eradicated by syringing with soap suds, but foliage badly affected should be removed and burned, and the plants encouraged to put out new leaves and branches.

PÆONIES FROM SEED.

Seeds from Pæonies sown in autumn in a cold frame will germinate—some next spring, and others the second spring afrer sowing. It is by means of seeds that the new varieties are propagated. Division, however, is generally the more successful and satisfactory method of propagation for the amateur, and the one to be recommended.

A VASE FOR CUTTINGS.

FIG 1578.

The propagation of cuttings may be a source of window adornment as well as of interest and pleasure, by using a standing vase of silver sand, and arranging the cuttings tastefully, as represented in the little engraving. The sand should be kept constantly wet, and in partial shade, at least until the cuttings begin to callous. Avoid strong draughts of air, and keep the atmosphere moist by evaporating water in the room.

CHINESE SACRED LILY.

When these are grown in water it is generally as well to cast them out after blooming. They are worthless except to produce small offsets, which must be grown for several years before they become of blooming size. When grown in pots of earth, however, continue watering till the tops begin to fade, then gradually dry off.

—*Park's Floral Guide.*

TUBEROUS ROOTED BEGONIAS, AMARYLLIS AND FREESIAS FOR THE AMATEUR; THEIR TREATMENT AND GROWTH.—I.

A paper read before the Hamilton Horticultural Society by W. Hunt, florist.

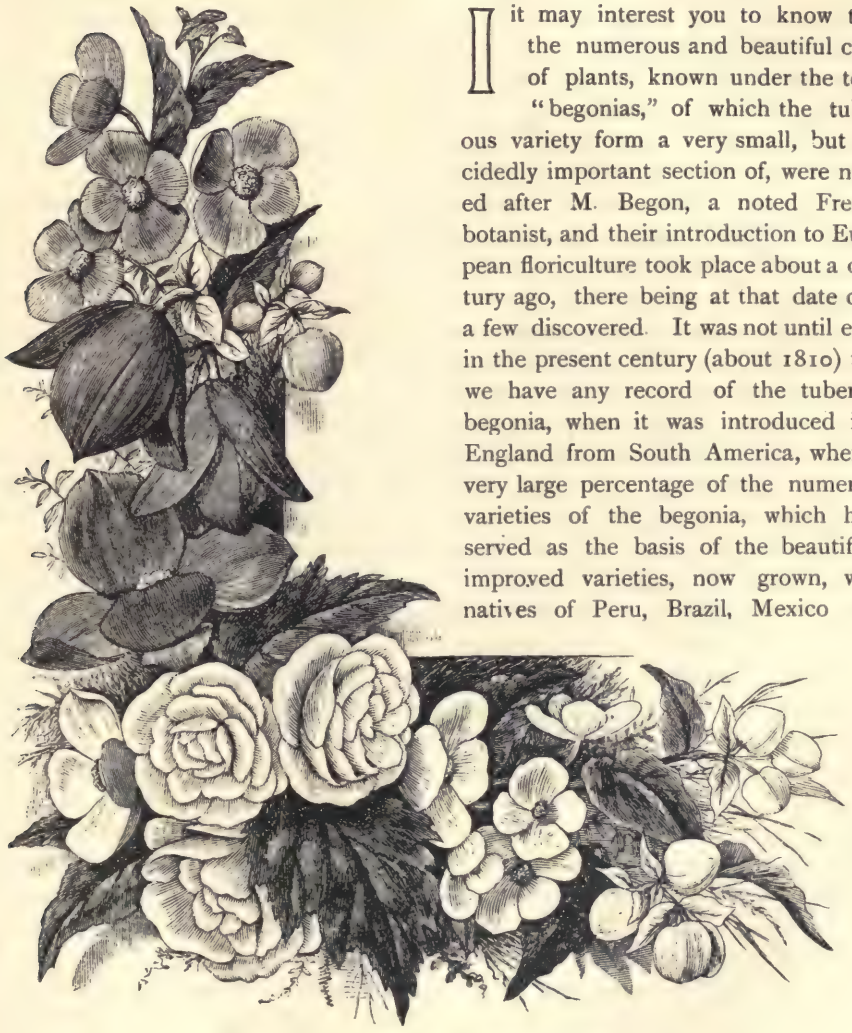


FIG. 1579.— SPRAY OF TUBEROUS BEGONIAS.

If it may interest you to know that the numerous and beautiful class of plants, known under the term "begonias," of which the tuberous variety form a very small, but decidedly important section of, were named after M. Begon, a noted French botanist, and their introduction to European floriculture took place about a century ago, there being at that date only a few discovered. It was not until early in the present century (about 1810) that we have any record of the tuberous begonia, when it was introduced into England from South America, where a very large percentage of the numerous varieties of the begonia, which have served as the basis of the beautifully improved varieties, now grown, were natives of Peru, Brazil, Mexico and

Lima, while a few originated from Africa, the west Indies and other warm climates. For a long time the begonia was treated altogether as a stove or hothouse plant, and at the present day, fine specimens can be seen, propagated and grown entirely in the windows and gardens of many of our own citizens, who are lovers of this beautiful and interesting class of plants; but very little was done to materially improve the tuberous varieties of the begonia, until well into the present century, when it was taken in hand by British and continental florists, who by a careful system of hybridization of the few. and at that date thought to be almost worthless varieties, together with some more recent importation of a better type, have produced the numerous and magnificent specimens to be seen at the present day in almost every florist's establishment in the world. Among the most successful improvers and growers being John Laing & Sons, Henry Cannell, and Ware & Co., of London, England, the first mentioned firm devoting immense houses, and in the summer acres of ground to the culture and development of this tuber, beside other American and Continental growers that devote special attention to the tuberous begonia, and both seed and tubers of good strains are now offered at very reasonable prices in most of our Canadian florists, and seedsmen's catalogues.

Apart from the beautiful and innumerable shades and colors of both the single and double varieties of the tuberous begonia, varying as they do from pure white to pink and deep crimson, from pale yellow to orange, and almost brown so deep is the shading of some of the bronze varieties, there is also another feature, that strongly recommends this plant to notice, which is the beautiful emerald green foliage of many of the varieties, shaded and marked by hues of a much lighter color, oftentimes nearly white, making the plant still more attractive than it would be if, as is the case in many plants having fine flowers, the foliage is poor and meagre looking. There are two almost distinct classes of this plant, so far as habit and growth is is concerned, viz: Erect and Drooping varieties, the latter being specially adapted for window boxes, hanging pots and baskets, placed in partially shaded positions, filling a much needed want in that respect.

The great aim of the improver and growers of the erect varieties, has been to secure beauty and density of foliage, with flowers having the necessary attributes of a perfect flower, viz., color, symmetry and substance, with the flower standing erect on stout stems, carried well above the foliage and in full view of the admirer. This has been so successfully carried out that one is compelled to think the limit of perfection has been attained, until, as in other classes or natural orders of plants, we are surprised by some new and oftentimes chance addition, so far as human skill and science are concerned, to the floral wonders of the world, showing, as they often do, some delightful feature really distinctive from anything hitherto produced.

I am afraid I shall have already tired you, before coming to what might be termed the practical part of these remarks, so I will endeavor, as briefly as possible, to give you a description of "How to secure and grow this delightful flower."

The easiest method would be to purchase tubers from some reliable firm early in the spring, say February or March, the bulbs will likely then be in a dormant, or resting state, and if in good, sound, firm condition, satisfactory

FIG. 1580.—SINGLE TUBEROUS-ROOTED BEGONIA, SUTTON'S QUEEN OF WHITES.
(*Engraved from a photograph.*)

results should be obtained the first season. If you can command a fairly even temperature of 60 or 70 degrees, you can commence to start the tubers at once by securing a flat wooden box (not a match box), two inches and a half deep, with holes bored through the bottom sufficiently large for drainage purposes, the box to be of a size so that the tubers can be placed on it, and allow about one inch of space between each one. Put about half an inch of damp sand in the box first, so as to cover the bottom of the box evenly, then place the tubers in as above stated, and fill in around them with sufficient dry sand to cover them and water thoroughly. If the sand settles unevenly after watering even up with dry sand, water again so as to settle the sand firmly around the tubers and when this is done the tubers should be barely show-

FIG. 1581.—MR. HUNT.

ing through the sand. Place the box in a warm position near the glass where the sun at midday does not strike directly on it, and in about a week, or perhaps longer, usually when the tubers show a growth of about half an inch in height, a tuber or two may be carefully lifted from the sand; if small fibrous roots about an inch long are showing, the tuber can be potted, if no root growth is showing, return the tuber at once into the sand and water thoroughly. In potting the tubers use fairly well drained pots, of a size in proportion to the size of the tuber. A tuber one inch in diameter would require a six-inch pot, and so on, in proportion to its size, some very large tubers would require a nine or even ten-inch pot, as it is best to have the pot large enough for them to flower in, without repotting, as repotting tuberous begonias in an advanced stage of growth is a delicate and dangerous occupation, however carefully done, and is not really necessary.

Care must be taken in potting the tubers not to injure the young fibrous roots by pressing the soil around them too closely; the best way is to fill the pot nearly full with well prepared, enriched, dry loamy potting soil, then take out sufficient of the soil in the centre to make a hole, large enough so that the tuber will be barely below the surrounding soil; sprinkle a handful of dry sand around the tuber to help start root action; fill around carefully with the dry soil taken out, so that the tuber barely shows above the top of the soil; water thoroughly; if the soil settles to leave the tuber bare, fill in with more dry soil, and water slightly again; place the box in a warm situation near the glass, partially shaded, water only when appearing dry, which will be seldom until established, then harden off gradually in a slighly lower temperature, as the tuberous begonia does not need a high temperature—50° to 60° being suitable—to produce stocky plants with good foliage.

Give the plants a good circulation of air, as the tuberous begonia when well established dislikes a close humid atmosphere; in fact I find it best not to syringe or sprinkle the plants overhead at all; even in the open air, overhead watering is not really desirable, as the peculiar rough, spiney surface of the foliage retains the moisture in a close atmosphere sufficient to spot and rot the leaves; this peculiarity applies to many other varieties of plants, among them being the gloxinia, gesneria and achimenes.

I might add though, that unless there is a long spell of continuous wet weather, the tuberous begonia when planted out in beds or borders, stands the rain very much better than geraniums, especially if sheltered a little from sweeping winds.

The tuberous begonia can be propagated from cuttings with fairly good

success, in pots or pans, well drained, first, and filled about half full of loamy potting soil, with a small percentage of sand mixed with it; then fill the pot up nearly level to the top with propagating sand; the surplus growth from a large tuber can be utilized for cuttings, as four or five strong shoots is sufficient to leave on an ordinary sized tuber for flowering purposes, taking the weaker ones off for cuttings.

The method of taking the cuttings, to prove most successful, is to pull or break the growth away from the tuber, for the base of the cutting close to the tuber strikes easier, as it is often already partly callused when taken off; the cuttings can be taken when the growth is about four inches long, about the time the strong shoots show signs of flowering. Pinch the bloom buds, if any, carefully off the cutting; be very careful not to force the cutting into the sand, or the base of the cutting will be injured, thus preventing it from callusing and rooting; put the cutting in the sand so that its base is just above the top of the soil and in the sand, about half way down the pot. Water well once, never allowing the sand to get really dry; I find it is the best plan to allow rooted cuttings to grow on in the pot, or box, they have been propagated in until the foliage shows signs of decay when withhold water gradually until the foliage has decayed entirely, when the box or pot, with the foliage left undisturbed, can be stood away in a cool dry place; a temperature of 40° or 45° will be suitable; but if very vigorous they can be grown on in small pots to winter in, where they can in either case remain until the following spring, when the young tubers can be taken carefully out of the sand or soil and started into growth in the same way as recommended for large ones.

Of course the size of the young tuber necessitates a slight difference in handling, and even more care than the large ones. I have been very successful in starting them in the spring in the same box they were propagated in, but this requires care, as the tuber cannot be seen so deep down in the pot.

The after culture is similar to that for large tubers, only that the pots used must be smaller, probably at first 2½ inch pots will be large enough; these young tubers can easily be re-potted as required into larger pots, until showing signs of flowering. The soil should have a larger percentage of sand in the first potting than that recommended for the large tubers, or instead of putting into larger pots, the young plants may be planted out about the second or third week in June, in beds or borders, in a partially shaded position and in loamy soil.

I omitted to mention that the cuttings when first started require a warm situation, and not exposed fully to the sun. One advantage in propagating from cuttings is the certainty of securing a plant similar to the original, which is not often the case when propagated from seed.

The cultivation of this begonia from seed is possibly the method that will most commend itself to an enthusiastic amateur, not only because one is kept on the tiptoe of expectancy and uncertainty, from the time of sowing the seed until the first flowers have fully expanded into full beauty, but because there are no difficulties that cannot be overcome by care and watchfulness in the first stages of growth, and that are necessary with all small seeds. To secure satisfactory results, use a seed pan,

(not a saucer) pot or small wooden box, carefully avoiding a match box. I prefer the latter to either of the others mentioned, as the seed does not dry out as quickly as in a seed pan or pot. The box should be about two inches deep with holes bored through the bottom sufficient for drainage ; place broken pot or gravel in the box nearly all over, then put a thin layer of sphagnum or common moss over this, fill to within half an inch of the top with soil composed of one part dry sand, one part leaf mould and four parts of dry loamy potting soil mixed well together, and sifted through a fairly fine sieve before putting into the box ; press down firmly and evenly ; then cover this again with a quarter of an inch of finer sifted soil of equal parts of dry loamy soil, sand, and leaf mould mixed well together, and pressed firm and quite level ; then water thoroughly so as to soak all the soil. If any uneven places are seen after watering sift in enough of the last named compost to level up, water again slightly and sow the seed at once, which should be of as good a strain as possible, that is, saved from good varieties. The seed being very minute, will have to be carefully and barely covered with fine dry leaf mould ; I prefer to shake it over the seed with the fingers to sifting it over, as it can be done more evenly, in fact, my usual method with all very fine seeds is to use only the tip of the first finger and thumb ; it is a slow method, but sure. A layer of sphagnum or common moss may be laid over the seed to prevent washing when watering, but care must be taken to remove it as soon as the plants appear ; water carefully with tepid or lukewarm water at this stage, but only when appearing to be dry. Place the box in a warm, partially shaded place near the glass, where the hot midday sun does not strike directly on it, as a few minutes hot sun will burn up the germinating seed or young plants and destroy them. It is the safest plan to put a pane of glass over the box or pot, and then shade with a sprinkle of sand just to cover the glass, or shade lightly in any other way. The glass can be kept close at first, but when the seeds start into growth, especially at this stage, will the tuberous begonia thrive in a close humid atmosphere.

When the plants are large enough to handle, say when the second leaf is formed, take a pointed label or stick which has been dipped in the water first, with this stick take the young seedlings from the box, and plant in a carefully prepared box or pot, prepared in the same way, but with much less drainage than for the seed box, and in a similar compost, excepting that the compost need not be sifted so finely. Be careful to water the seedlings before commencing to transplant them, so as to get all the soil possible to adhere to the roots ; place the seedlings about an inch apart each way and when large enough, shift into suitable sized pots, two and a half or three-inch pots will be about the size. These should be filled with a compost, similar to that recommended for the seedlings, with about half the proportion of leaf mould and sand to the loamy potting soil, and possibly less drainage, as moving the drainage material when potting, if in large quantities may possibly injure the roots of the plant.

The next shift or re-potting will be into the flowering pots, when the plants have attained sufficient growth of roots and foliage ; 5 or possibly 6 inch pots will be suitable, according to strength of plant to be potted ; or they may be planted in the border at once, if all danger of frost is over—possibly the middle of June will be early enough. Plant in a rich loamy soil and in a partially shaded

position, a north or east aspect being the best—anywhere so that the burning mid-day sun does not strike them, and, if possible, sheltered from sweeping winds. Plants in pots can be stood out of doors in the same position. Watch the plants carefully and put sticks to support them, as the weight of flowers and foliage will often cause them to topple over and break the stem off close to the tubers, thus ruining the plant, perhaps permanently.

In the fall, about October, after the tops have been slightly touched by frost and before the tubers are touched, take them from the borders, foliage and all if you can; place them in boxes deep enough, so that the tubers can be covered an inch deep with moist sand; place the boxes in a dry cool place, free from frost, a temperature ranging from 40° to 45° is best; if the tubers are in pots, remove pots—foliage and all—in the same way and withhold water gradually until the foliage drops away of itself from the tubers; then, if necessary, remove the foliage and withhold water altogether until the following spring, when they will require similar treatment as before recommended for large tubers.

I prefer keeping the tubers in the pots they grow in, rather than turning them out in the fall, and packing away in cocoanut fibre, or sand, as often recommended; as I have had better results by keeping them undisturbed in the pots until spring, having grown and kept the same tubers for ten years with good results. But I would not recommend keeping them, except for cuttings, quite so long as that, as young tubers require less care and give finer flowers than very old ones.

If these directions are fairly well followed out, you will be rewarded with a gorgeous display of flowers at a season of the year—July to October — when good flowers are rather scarce; they may possibly require a little more careful handling than some plants, but they make ample returns for the care given. A few well grown specimens in pots stood out so that the burning sun does not strike them, or planted out in beds in the same position, to say nothing of a whole bed in full flower, add beauty and brightness to a spot that without them would look barren, perhaps unsightly.

I may say that I have been fairly successful with cuttings taken when the last flowers are dying off the plants in the fall, and treated as recommended before for cuttings; it is worth a trial, in case of good varieties anyway.

The only disappointing feature in propagating this begonia is that one can scarcely get flowering results the first season; but with the aid of a greenhouse or hot-bed, early sowing and good culture, it is possible to flower the tubers, oftentimes early the first season.

I will conclude this subject by giving in brief, a few leading points to be noticed in the culture of this beautiful and fascinating plant:

1st. Get a good strain of seed or tubers.

2nd. Sow and plant carefully.

3rd. Use good, rich, loamy soil, and pure leaf mould and sand.

4th. Water well at the roots when established, carefully at other times.

5th. Don't sprinkle or syringe the foliage at all.

6th. Give all the air possible.

7th. Select a cool, shaded position in summer.

8th. Dry tubers off gradually.

9th. Keep perfectly dry when once dormant.

10th. Use good loamy potting soil only, for flowering plants.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

EXPORTING TENDER FRUITS.—Prof. J. W. Robertson, of Ottawa, gave an address on the prospects of this trade, at St. Catharines. He said that too many had gone into fruit growing because they had failed on the farm, who knew nothing about the best methods. They planted varieties that would grow with least care, and least expense, without reference to the demands of the best markets; and thus we have too many varieties of tender fruits thrown upon our home markets.

For a successful export trade we need to confine ourselves to a few staple kinds, and those the very best.

Great Britain is a good market, importing annually about a million dollars' worth of pears; one and a quarter million of plums, and two and a quarter million dollars' worth of grapes. Success in capturing these markets depended upon the men who undertake it; men who will deliver fruit (1) sound, (2) large, (3) of good appearance, and (4) of high flavor, characteristics that are important in the order named.

During the past season over 2000 packages of tender fruits have been sent over for experiment, and of these 400 were Bartlett pears. The packages held about a basket and a third each, and netted an average return of 72 cents each. Three hundred and twenty-four cases of peaches were forwarded, and most of these were a failure, because not of a variety that would carry.

Of early apples 254 cases were sent, and these realized 44 cents net at Grimsby. These cases were too small; they should contain a bushel.

Four hundred and forty-one cases

of grapes were forwarded, but these were not well received. A few cases of Wilder grapes, however, of about 17 lbs of fruit each, netted at Grimsby about 80 cents each.

FRESH OR ROTTED MANURES.--Mr. F. T. Shutt, in Bulletin 31 of Central Experimental Farm, speaks of the relative merits of rotted and fresh manures as follows:—The advantages of rotted over fresh manure have already been studied; it has also been seen, on the other hand, that even under a good system of preservation, rotting must be accompanied by loss of fertilizing constituents. Weight for weight, rotted manure is more valuable than fresh manure, containing larger percentages of plant food and having these elements in a more available condition, but the losses in rotting may, and frequently do, out-balance the benefits. Undoubtedly the safest store-house for manure is the soil. Once in the soil, the only loss that can occur is through drainage away of the soluble nitrates, and this is usually very slight, indeed it is not to be compared with the loss of nitrogen in the fermenting manure heap. We, therefore, unhesitatingly say that the farmer who gets his manure, while still fresh, into the soil, returns to it for the future use of his crops much more plant nourishment than he who allows the manure to accumulate in piles that receive little or no care, and which, therefore, must waste by excessive fermentation or leaching, or both.

THE ANNUAL ADDRESS of Mr. J. W. Bigelow, President of Nova Scotia Horticultural Society, states that the apple yield of the past season amounted to about 300,000 brls., valued at $800,000. The address was printed in pamphlet form for distribution.

THE American Pomological Society holds its next meeting in Philadelphia, on the 7th and 8th of September, 1899, with the Penn. State Society.

THE GREAT AND WIDE SPREAD damage by the severe cold of last February is reported to have been most serious throughout a large part of the United States, and from the fruit report sent out by Mr. Latham, secretary of the Missouri Horticultural Society, it would appear that not only are the fruit buds of the peach, pear and cherry badly killed, but even the trees of these fruits in many instances.

THE SUGAR BEET.—Mr. F. W. Glen, of Brooklyn, sends us a leaf from the sugar planter, and draws attention to the good profits now before those who grow the sugar beet. Granulated sugar is now being manufactured at less than three cents a pound, and the farmers get from $4 to $4.50 per ton for their beets, an average crop being twelve tons to the acre. Mr. Glen thinks there is no better land on the continent for the production of the sugar beet than Western Ontario.

FREIGHT CLASSIFICATION OF FRUIT.—In view of the efforts now being made by our committee to secure better rates on the carriage of our fruit, it will be of interest to note that our American cousins are seeking after the same ends. The following is a note from the last meeting of the Western New York Horticultural Society.

FREIGHT RATES ON PEARS AND QUINCES.

This Society, through its committee on railroad classification, has made efforts to have pears and quinces placed in the same

class with apples. At present the rates for pears and quinces are much higher than for apples, although it costs no more to the railroad to carry them. The difference in price does no longer exist, and cannot be put forward as a justification of the difference in rates. The outlook is also that in ten years the shipments of pears and quinces will exceed those of apples. The only thing accomplished is a slight change for the better in the classification of quinces. Another grievance against the railroad is presented by Mr. Perkins, who states that the railroads are now making the minimum weight for a full car 30,000 pounds, when it used to be 20,000 pounds, later raised to 24,000 pounds, and the minimum for refrigerator cars 15,000 pounds, while they do not furnish cars large enough to load 15,000 pounds—all these are great hardship to shippers. The Committee on Railroad Classification was finally continued, and charged to make new efforts in securing concessions from the railroad.

COMMISSION MEN.

A resolution endorsing the Legislation now pending the State Legislature, and aiming to clip the wings of dishonest commission men by forcing them to report to the shipper the name and address of the city buyer and the prices paid, passed after a spirited debate, and with much enthusiasm.

Our Affiliated Societies.

KINCARDINE.—Mr. Joseph Barker, the Secretary, sends us a copy of the circular being issued their members, which is as follows :—

PLANT AND BULB DISTRIBUTION FOR 1899.—Members will please make a selection and notify the Secretary, Jos. Barker, or Walter M. Dack, on or before 18th March. Collection No. 6 will be ordered for all who omit to do this.

Members requiring more than one Collection will pay additional only the wholesale cost to the Society. All stock is guaranteed first-class and named Spring delivery in April ; Fall delivery, early.

Collection 1.—(Fall delivery.) Azalea, white or colored, in pot ; 6 double tulips, 3 white and 3 yellow.

Collection 2.—2 clematis, 2 yrs. old—Jackmanii (purple) and Henryi (white).

Collection 3.—2 palms—Kentia Balmoreana (4 in. pot) and Asparagus Sprengeri (4 in. pot).

Collection 4.—3 roses, hardy hybrids, 2 yr. old—Crimson Globe (moss), General Jacqueminot (crimson) and Margaret Dickson (white).

Collection 5.—Tuberous begonia, 2 double and 3 single ; 2 Gloxinias (tigered and spotted).

Collection 6.—(Fall delivery.) 5 hyacinths—3 single and 2 double, assorted colors ; double tulips—6 white and 6 yellow.

Collection 7.—5 gladioli—Childsi ; 3 cannas—Burbank, Bouvier and Queen Charlotte ; 2 cyclamen (white and red).

Collection 8.—3 carnations—Bridesmaid white, Daybreak pink, Flora Hill white ; 3 chrysanthemums—Philadelphia white, M. Henderson yellow, Mrs. E. G. Hill pink ; 1 Gloxinia—spotted ; 1 Asparagus Sprengeri.

Collection 9.—3 currants—Black Naples, 2 year old ; 3 currants—White Grape, strong 1 year old ; 25 raspberry—Cuthbert.

NOTE BY EDITOR.—We would advise our Societies to make up one general list for all members, as they could then buy the stock wholesale in advance at a great reduction, and the distribution would be much less troublesome.

CHATHAM.—Our Society is in a very healthy condition, and gradually creeping up. We shall have over 100 members this year. We are giving each member 1 palm, 1 fern, 1 new geranium, 1 tea rose, 1 hydrangea, 1 fuchsia, 1 canna, 1 tuberous begonia, 1 tube-rose, 1 oz. sweet peas, 1 pkt. asters, 1 pkt. pansies, 1 pkt. philox, 1 pkt. verbena. We are also likely to give bulbs in the fall, and talk of having a Chrysanthemum show.

HAMILTON.—This Society has issued a printed Directors' report, dated 31st Dec., 1898, showing list of officers, of addresses giving during the year, of plants given away, of honorary awards given at exhibition and of finances This Society receives an annual grant of $350.

HAMILTON.—At the monthly meeting, held March 6th, a paper was read before the Society by W. Hunt, florist, on "Tuberous Begonias, Amaryllis and Freesias for the Amateur, their Treatment and Growth."

Question Drawer.

Fertilizers for Celery.

1047. Sir, — What kind of fertilizers should be used in connection with stable manure for celery, and in what quantities?

Reply by Prof. Shutt, Central Experimental Farm, Ottawa.

If it is intended to use a commercial brand of fertilizer, the writer would advise from 700 to 1000 per lbs. acre of one containing—

Nitrogen	5 per cent.
Available phosph. acid	6 "
Potash	8 "

(Note. — When purchasing a commercial fertilizer, the buyer has a right to demand a certificate of analysis.)

The farmer and market gardener will in many cases find it more economical to obtain the ingredients or constituents that are used in compounding artificial fertilizers, rather than the manufactured product. For those who desire to adopt this plan, we recommend the following :—

	Per acre.
Superphosphate (plain)	300 lbs.
Muriate of potash	125 "
Nitrate of soda	200 "

If the soil is rich in well decomposed vegetable matter *(humus)*, the amount of nitrate may be decreased to 100 lbs. per acre. The superphosphate and muriate should be thoroughly worked into the soil before setting out the celery plants; the nitrate should be given in two applications to the growing plants (some three weeks apart) as a top dressing.

It is not a good plan to apply heavy dressings of fresh manure directly to the plants, but the land should be previously well prepared by deep culture and digging under thoroughly rotted manure. Further, it should be remembered that the best returns cannot be made unless the plants have a good supply of water, even though the soil is rich in plant food.

Wood Ashes for Onions and Potatoes.

1048. Sir, — What quantity of wood ashes should be put on an acre of onions, and also one of potatoes?

Reply by Prof. F. T. Shutt.

To be able to answer these questions, save in a more or less indefinite way, one should know something of the condition of the soil, and its history as regards previous cropping and manuring. On soil in a fair state of fertility, we should advise from 1500 to 2500 lbs. of wood ashes per acre for onions, and from 1200 to 2000 lbs. for potatoes.

(Note.—It is generally held that for both of the above crops it is better to apply the stable manure the year previous.)

Frank T. Shutt,
Chemist, Dom. Exp'l Farms.

The following questions were put to one of our lecturers at Horticultural Societies, and at his request we are having them answered in this Journal by various authorities, as follows :—

Questions 1049 to 1055 are answered by W. W. Gammage, London.

1049. Sir,—What is the cause of the leaves falling off the carnation plants? What is a cure?

Without seeing your plants, I would say it is caused by the hot dry atmosphere of your rooms; while the same would follow from over-watering, or

by not giving sufficient water; the carnation as a rule is not a satisfactory house plant.

1050. SIR,—Should there be a dressing of manure put on lilies in the garden over winter?

I consider it would be beneficial with most varieties.

1051. SIR,—When is the best time to separate bulbs from white lilies?

August.

1052. SIR,—Have you any experience with house plants getting yellow leaves, but otherwise healthy? Plenty of light and moisture, pots well drained, the leaves turn yellow around the edge first.

The above results can be attributed to one of the following causes: escaping gas from furnace, coal stove, or illuminating or fuel supply pipes; an overdose of liquid manure; a sudden fall in temperature.

1053. SIR,—Please explain the effects of gas on house blooming plants?

The injurious effect on plants kept in a room where gas is used, is caused by the sulphur which is contained in the gas, the fumes of which will always cause single flowers to drop their petals.

Top-Grafting on Talman Sweet.

1054. SIR,—Is it a fact that top-grafting the King apple on the Talman, makes it more prolific?

J. M.

Several of our leading fruit growers have proved by their own experience that the King apple is much more productive when grafted on Talman Sweet than upon other stock.

Question.

1055. SIR,—Some writers in the HORTICULTURIST advise top-grafting some varieties of the plum. Would it be safe to do the grafting the same spring the tree is transplanted, or would it be better to defer the grafting a year?

It would not be wise to attempt top-grafting a tree the same year it has been transplanted, as the removal checks the growth to a degree that failure would be almost certain.

The following list of questions, Nos. 1056—1063 are answered by Webster Bros., Florists, Hamilton.

Rose, Queen of Prairie.

1056. SIR,—What is the best method of propagating the Queen of Prairie Rose?

The Prairie Roses may be propagated from hard wood cuttings, about 12 in. long, inserted in the open ground all but a few eyes. October is usually preferred for putting in these cuttings. For propagation in a sma l way, layering is usually employed, midsummer and a few weeks afterwards is the best time to choose; loosen the soil well around the plants, take a convenient branch, bend it down into this soft earth and cover it over a inch or so deep, letting the end of the branch protrude four or five inches at least. Sometimes a cut is made in the branch before covering it; with the Prairie Roses however, it is unnecessary.

Gloxinias.

1057. SIR,—How are Gloxinias started and cared for?

Gloxinias should be started in early spring in 60 to 80 degrees of heat in light soil; be careful not to give too much water at this stage. After flowering all summer, give the bulbs a rest by gradually witholding the water, after they have dried off they may be kept in a warm cellar or under the stage of a greenhouse.

Pruning Shrubs.

1058. SIR,—When and how should shrubs be pruned ?

Oleanders are best trimmed in the summer after flowering, this gives them a chance to make new growth. These growths made in summer will flower the ensuing summer if ripened well. Trim them only when the size or shape of the plant demands it. Roses, the hardy varieties, should be pruned in the spring, just as growth is beginning. The severity of the pruning must be varied according to the habit of the rose ; strong wooded varieties such as M. Dickson must be left quite long or no bloom will be the result, while weak growers, such as Louis Van Houtte, should be shortened down to a few eyes.

Tuberous Begonias.

1059. SIR,—What is the best method of treating tuberous Begonias.

Start the bulbs into growth in March or April ; it is best to wait till they show signs of starting of their own accord. A little bottom heat will start them more quickly, a temperature of 60 to 65 degrees is best for the tuberous begonia. If grown in a house or greenhouse they should be protected from the direct rays of the sun. In many parks in the United States these plants are used for bedding in the open air with great satisfaction, we have never heard of them being very successful in Canada. The tubers are stored over winter in boxes of light soil or sawdust and kept in a temperature not too high but secure from frost. An eminently successful American grower of these plants claims that the tubers may be wintered over safely anywhere that potatoes will keep well.

Calla Lily.

1060. SIR,—How should the Calla Lily be treated in summer ?

Calla Ethiopica will flower all the year if frequently repotted and watered. It is usual to rest it during the summer months, as a bulb so treated will produce fewer leaves and a greater number of flowers. The variety Little Gem demands a decided rest, in fact this seems to be the secret of getting it to bloom freely.

Cineraria.

1061. SIR,—What treatment would you give the Cineraria after flowering ?

A berth on the rubbish heap is always recommended for the Cineraria after it has flowered. Young plants must be raised from seed each year.

Gladioli.

1062. SIR,—Do Gladioli degenerate after being grown a year or two ?

Gladioli are generally supposed to produce poorer flowers when the same bulb has flowered several years in succession. Young bulblets taken from the base of the parent bulbs and grown on is the best way to put new vigor into a collection that is degenerating.

Heliotrope.

1063. SIR,—What is wrong when leaves of heliotrope turn brown ?

The leaves turning brown is very likely what is commonly known as "rust," this seldom makes its appearance when the roots have sufficient pot room. The only cure for it is to induce a strong new growth.

Growing Chestnuts.

1064. SIR,—How are chestnuts to be managed to have them grow ?

A SUBSCRIBER.

We presume our correspondent refers to chestnut seed. These should be gathered as soon as ripe in the autumn,

and packed between layers of moist sharp sand in boxes. The boxes are then buried in the ground on some knoll or dry place, until planting time in spring, when they are sown in drills in the open ground, covering them about two inches deep with soil. When these stocks have reached a diameter of about half an inch, three or four feet from the ground, they may be grafted early in the spring.

Questionts 1065 to 1071 are answered by Mr. A. Alexander President of the Hamilton Horticultural Society.

Tuberous Begonia.

1065. SIR,—I have a tuberous begonia which has been in leaf all winter, it is rotting at the root. What is the cause?

The tuberous begonia as soon as finished blooming should have been allowed to dry off and be kept in sand until about March, when it should again be started into growth. Throw it away and start again.

Nitrate of Soda.

1066 SIR, — How would you apply nitrate of soda to house plants?

Nitrate of soda is very soluble in water, and the best way to apply it is to put about a tablespoonful in a pail of water, or about a large teaspoonful in a gallon, and water with this once a week. Only plants in a growing state should have this treatment.

Calla Lily.

1067. SIR,—I have a calla lily, and the pot is quite full of shoots. Should these be removed from the parent bulb?

The shoots spoken of are the leaves of young callas which are produced around the parent bulb or tuber and should be allowed to grow where they are until after the season of rest which all callas should have during the summer. Before starting into growth next fall turn the whole out of the pot and take away these young callas and repot the large bulb. The small ones if desired may be potted separately thus multiplying the number of lilies.

Charcoal as Drainage.

1068. SIR,—Is charcoal, alone, good drainage for flower pots?

Yes, if broken into small pieces about the size of peas. About ¾ of an inch of this material placed over the crock covering the hole in the bottom of the pot with a little rough leaf mould or moss over it would make an ideal drainage for pot plants.

Cannas.

1069. SIR,—How should dormant canna roots be started?—Most of us failed with ours last year.

Canna roots suffer from two main evils when being kept over the winter in a dormant condition. First by being allowed to get too dry, and second by being exposed to too low a temperature. The least frost destroys their vitality. In taking them out of the ground in the fall, as much soil as will adhere should be taken with them and set on the floor of a cellar or in boxes about six inches deep set close together, any place where the temperature never gets below 40 or 35 degrees will do. They will only require looking to once or twice during the winter just to see that the rhizomes are plump and fresh. All they require to start every bud into growth is increased heat and moisture. Small roots of one or two buds or bulbs, if fresh, should be potted in the usual way and placed in a warm place. As soon as growth begins they take plenty of water.

Sweet Peas.

1970. Should Sweet Peas be planted from north to south, or from east to west; and should it be sunny or shady. What sort of soil?

Rows of Sweet Peas should run from north to south, as they then get the sunlight on both sides of the row. A sunny exposure is best. Any good loamy soil well enriched with *thoroughly decayed* stable manure will do.

Questions 1071, 1072 answered by Mr. W. T. Macoun, Horticulturist, Central Experimental Farm Ottawa.

Fertilization.

1071. SIR,—Does not the honey bee fertilize the second crop of clover?

2. Does nature abhor close fertilization?

3. Have you observed that a certain insect visits only flowers of a particular color?

4. Do different species of flowers ever fertilize each other?

5. Does a plant prefer the pollen of a flower of another species to that of one of its own kind?

6. Are experiments still being carried on in Manitoba to obtain by artificial cross fertilization of Fife wheat with Ladoga or by selection from the Fife alone to secure a variety of Fife that will ripen earlier and before frost?

1. The bumble bee plays a more important part in fertilizing the second crop of red clover than the honey bee; which in most races is unable to reach the nectar in the blossom and consequently is rarely seen in the red clover.

2. It would seem that nature does "abhor close fertilization," as most flowers are so constructed that they can receive pollen from others either by the agency of the wind or insects. Barley, wheat, and oats are among the few which are close fertilized. It has been proven that the seed from flowers, which are made to self-fertilize by preventing the admission of other pollen, do not produce as strong plants as those which are left to cross fertilize naturally.

3. Insects do not appear to have any particular color that they prefer as can be easily observed by watching a honey bee in a garden.

4. Different species are sometimes hybridized in nature, but this is not of frequent occurrence. There are hybrid willows and oaks produced in this way. The Rogers' hybrid grapes are an example of artificial hybridization.

5. A plant does not prefer the pollen of a flower of another species to that of its own; this would mean hybridization which seldom occurs in nature. If the pistil of a flower, however, receives the pollen of another flower of the same species as itself better results will follow than if it were self-fertilized.

6. The cross-fertilization of wheats was begun at the Central Experimental Farm, Ottawa, in 1888. Since that time many varieties have been originated. None, however, have been produced during the last two years. One variety, the Preston, a cross between Ladoga and Red Fife, has during the past four years given a greater average yield per acre than any other kind tested at the several Dominion Experimental Farms; selection of the cross-bred grains is being carried on yearly.

Apple Canker.

1072. SIR,—I have a lot of young apple trees, planted two and three years, that are affected with a black fungus, the Ontario particularly so.

They have made a very good growth, but the trunks and even the new wood is nearly black in some cases with the fungus.

Would you advise washing trees now with the Saunders wash, or with a strong lye wash? Will either of these washes injure the buds on young wood?

I have idle time at present and would like to prune now, but have been advised not to prune young trees until later in winter. Do you think that trees would be injured if pruned now with a pocket knife? An early reply will oblige.

C. E. SMITH.

Your trees are probably affected with the Apple Canker, a disease long known in the old orchards of Great Britain, but until recently not prevalent in America. Your best remedy is to clean the trees thoroughly of dead and decaying bark, and spray with Bordeaux mixture. We refer our correspondent to Mr. Paddock's excellent article on the Apple Canker.

Open Letters.

Brugmansia Arborea, or Angle Trumpet.

SIR,—Of all the novelties in shrubbery, I think there is nothing to compare with the above-named one. I have one four years old which is now about six feet high, planted in a tub about fifteen inches deep, being a part of an old barrel, which I filled with the very best mould and some rotten stable manure, as this shrub is a very hearty feeder, and also needs plenty of water during summer or growing season.

It is a rampant grower, sending forth very strong stout branches ; upon the new wood the flowers are produced, which are a wonder and surprise to the amateur, and no one will walk past this beautiful little shrub, loaded with its gigantic flowers, without making some peculiar remarks about it

I have heard one observer exclaim, when looking at my shrub when in full bloom, that its beauty was really "supernatural." Last year my shrub bore nearly a hundred flowers, which are creamy white, about a foot long, and about five or six inches wide. The fragrance is delicately sweet, and will perfume a large back door yard for two or three weeks, if weather is favorable and not too hot.

My shrub had last year at one time opened sixty-five of those large flowers at once. This shrub is not hardy enough to allow the frost to strike it, but it is no trouble to winter it over in any room not below freezing point. I never had good luck by trying to winter it in the cellar ; the wood is too soft and fleshy ; it most surely will rot like a pumpkin-vine.

I have often wondered why the above-named beautiful flowering shrub is so little known. They are no more trouble to grow than the Oleander, Fuchsia and Hydrangea. I always cut back every spring, about two-thirds of last year's growth ; this will insure good, stout, thrifty shoots for a good crop of flowers, and also keep the shrub from growing tall and awkward to handle.

The flowering season, if not allowed to grow during winter season, is last of August and September. They will also flower during winter if kept in a warm room and clear of insects, which are so destructive to house plants. But if now and again a sprinkling of persiatic, manufactured by Pickhardt Renfrew, Stouffville, Ont., is applied, it will soon free the tree of the pest.

D. B. HOOVER, *Almira, Ont.*

March 1st, 1899.

Our Book Table.

BOOKS.

The Supervising Committee of the Experiment Farm at Southern Pines, N. C., have just issued a very valuable and important work on "Plant Food." The book is well printed and handsomely illustratod with many fine pictures. It would pay farmers to read this book, which, we understand, can be obtained free by sending to the Director, Experiment Farm, Southern Pines, N. C.

PLANT FOOD.—Its nature, composition, most practical use. Prepared to aid Practical Farms, Experimental Farms, Southern Pines. W. C.

LANDSCAPE GARDENING as applied to Home Decoration, by S T. Maynard, Professor of Botany Mass. Agricultural Coll. Published by J. Wiley & Sons, New York City. Price, $1.50.

A beautiful and valuable work, with numerous illustrations. It treats of the principles of landscape art as applied to location and ornamentation, grading, lawn making, arrangement and grouping, pruning and care of shrubs, walks and drives, renovating old homes, parks and school-yards, climbers, herbaceous plants, etc. A book of 338 pages.

SPRAYING FOR PROFIT, a pamphlet of 72 pages, by H. E. Weed. Published by Horticultural Pub. Co., Griffin, Ga. Price, 20 cts.

CATALOGUES.

SPRAMOTOR. — 5th Annual Catalogue and Treatise on diseases affecting fruit trees, vegetables, etc., and their remedies. The enterprise of this firm is well shown by their excellent and useful catalogue. Especial attention is called to the mechanical emulsion attachment, which may be added to any of these spray pumps and by which kerosene or crude petroleum may be combined with water in any proportion required.

WEBSTER BROS., HAMILTON, Canada, 1899. Canadian plants for Canadian people. 74 pages.

E. D. SMITH, Helderleigh Fruit Farms and Nurseries, Winona. Ontario. Descriptive and illustrated catalogue, 132 pages.

BARN YARD MANURE, Bulletin 31, Central Exper. Farm, by F. T. Shutt, Chemist.

RESULTS obtained in 1898 from trial plots of grain, etc., by Dr. Saunders, Bulletin 32, Central Exper. Farm, Ottawa.

FREEMAN'S FERTILIZERS.—The W. A. Freeman Co., Hamilton, Ont. Contains 48 pages descriptive of the various fertilizers, with testimonials.

HERSEE'S RELIABLE SEEDS.—Edwin Hersee, Seed Merchant and Nurseryman, Woodstock, Ont.

SPRAY PUMPS AND NOZZLES.—The Deming Company, Salem, Ohio.

BRUCE'S CATALOGUE OF SEEDS, 1899.—J. A. Bruce, Hamilton, Ont.

A. G. HULL & SON, St. Catharines, Ont. 19th Annual Catalogue Fruit and Ornamental Trees, Shrubs, Roses and Plants.

SOIL FOR PEARS.

CLAY soil is considered best for pear culture, and still it should not be too tenacious and sticky. A pear orchard will not thrive so well on any soil that has not a clay sub-soil. Next to a friable clay loam, a gravel loam is most desirable. A light sandy soil is the least desirable of any, and yet pears can be grown on sandy soil.

Standard pears can be planted twenty to thirty feet apart according to circumstances and habits of growth. If planted thirty feet apart, dwarf pears can be planted between the rows each way. I prefer a standard pear for general orchard culture, for the reason that they require less fertility and cultivation, and for the further reason that they are longer lived and make larger and more permanent trees.

When the question came up for a vote, however, before the Western New York Horticultural Society, we found that the dwarf pear was the favorite for orchard planting or for garden. Dwarf pears have the advantage of coming into earlier bearing. The dwarf pear is not short lived. It requires more pruning and more attention than the standard pear. Many varieties do better on the dwarf pear than on the standard.

I should not locate a pear orchard or any other orchard on a low piece of ground. I should locate it on a hillside. The pear is easily transplanted. I transplant several thousand every spring, and they do not lose on an average, one out of one hundred trees. Pear trees come into bearing earlier than the apple.

TEN CHOICE PEARS.

I WILL now give what I consider the best ten varieties of pears for export or home market or any purpose, for profit to the general planter, and I will start with Bartlett, Beurre Bosc, Beurre d'Anjou, Beurre Clairgeau, Doyenne de Comice, Duchess d'Angouleme, Sheldon, Lawrence, Doyenne Boussock, Ritson, and you may add the Keiffer, for the short time it will be in demand, and when there is no more call for it, you then could not have a better tree for top grafting, to any variety you wish, and in fact, if I was to plant a pear orchard, I would plant every tree Keiffer, and then top graft to what varieties I wanted, as there could not be a better parent stock to work from. Another good parent stock would be the old Edmonds or Church pear. I think if our Flemish Beauty was worked on to either of these, we might get it back to its original cleanliness and good quality, and also a number of other varieties, such as the Brockworth Park, White Doyenne, etc. I think that the want of cleanliness and their tenderness is due to weak parent stock, and I do believe that if all varieties of trees were treated in the same way, that we would have less diseases, such as blight, yellows, black knot, scab, etc. I will now ask, since I have taken up the pear, who will start the peach, plum, apple and cherry, and give their opinion, as to what they think the best six to ten varieties for the general fruit grower to grow.

I will also add what I would consider the best twenty varieties for exhibitions: Bartlett, Beurre Bosc, Beurre d'Anjou, Beurre Clairgeau, Beurre Hardy, Beurre

Gris de Hiver, Beurre Superfin, Doyenne de Comice, Doyenne Boussock, Ritson, Glout Morceau Lawrence, Goodale, Sheldon, Duchess d' Angouleme, Mount Vernon, Seckel, Clapps' Favorite, President Drouard and the Keiffer on the recommendation of the British market.

RODERICK CAMERON.

Niagara Falls.

GROWING GOOD PEACHES.

AMERICAN GARDEN reports Mr. Hall's address before the Massachusetts Horticultural Society as follows :—

"The difference of preparation of land for peach orchards, is the difference in business methods, the one being superior which is most thorough, practical and intelligent. The land cannot be plowed too much, and harrowing and cross-harrowing are less harmful than sensible.

"The trees should be planted early in the spring; fall planting is apt to be disastrous because the tender roots will not bear transplanting then from nurseries to open soil. While 16 feet each way is accepted now as a proper distance, the theory of planting trees 13 feet apart is justified by the fact that peach trees are mighty uncertain and may not fill out. Medium-sized trees, 3 or 4 feet high, are best to plant, and they should be trees one year old. In fact, no nursery ever delivered a two-year-old tree, though it is claimed that it does.

"It is not essential that a tree have many fibrous roots; most of them are dead anyway at planting, and a modest number will serve, provided they are cut smoothly when out in the ground. Fine earth should pack the roots, and the only thing having any business in the orchard after that is a horse, a harrow, and a plow. The practice of mixing crops, of planting alternate rows of corn and expecting to get a peach orchard of any vigor is extreme folly. At the first year's growth cut off all but a few top sprouts, and the next year cut off the interfering side spurs. Twice can these be removed, yet the tree will yield well.

"Do the pruning and shaping in the first two years. In pruning for fruit the question is, "How are your buds?" If they are nearly all killed, wait until spring, and when the buds are swelled, prune. Trim for peaches then. Don't trim for form; you may have one of the worst looking orchards in the country, but you will get more peaches.

"As to winter bud killing, 75 per cent. of your peach buds may blight, but if the remaining 25 per cent. are evenly distributed among the trees you need not worry. It is a popular fallacy that when it is announced that 50 per cent. of the buds have been killed the peach crop for the following season is doomed. It is time enough to thin your fruit after it has set in the spring. Large, fine fruit can be raised only when there is a moderate number of peaches on each tree.

"It takes from 10 to 12 days to gather peaches which have come to maturity. Don't use a machine in sorting them. Hire bright, intelligent women; they are better than men as a rule. And remember always that there is more profit in selling 50 or 60 peaches to the half-bushel at $2 than 100 to the half-bushel for 50 cents. There may be less nutriment and more water in the large fruits, but the people like them and will have them. As to the profit in peach growing, it depends on the individual.

Syringa Chinensis or Rothamgensis.

THE
CANADIAN HORTICULTURIST.

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LILACS.

AT THE CENTRAL EXPERIMENTAL FARM, OTTAWA, ONT.

THE lilacs or syringas are among the most valued of all shrubs for the garden. They are favorites everywhere and almost universally grown. Their hardiness commends them, for they thrive not only in Eastern Canada but many of them endure the colder winters of the North-West plains without injury. They are easily grown and the beauty and fragrance of their flowers, so freely produced in the early spring, and the richness of their foliage throughout the season, are qualities which make the lilacs deservedly popular.

This useful group of ornamental shrubs contains about ten species, seven or eight of which, with many splendid varieties which have been produced from some of them, are now more or less generally available for the decoration of our gardens.

The common lilac, *Syringa vulgaris*, was introduced to cultivation in 1597 and has hence been an object of admiration among lovers of flowers for more than 300 years. It is a native of Persia and Hungary, and when planted in good soil grows to a height of 10 to 15 and sometimes 20 feet. Although it suckers freely, if the suckers are persistently cut away it may be trained to a handsome tree-like form.

Lilacs may be propagated from suckers also by budding. They are sometimes grafted on the privet, but this stock is undesirable on account of its tenderness and lack of vigour. Of late years many of the best varieties have been grown from cuttings which, when placed under suitable conditions, are said to root without much difficulty. Lilacs on their own roots are much to be preferred since when grafted on the common stock the suckers thrown up from the roots are sometimes so numerous and vigorous as to crowd out or weaken the graft.

FIG. 1582.—SYRINGA VULGARIS, CHAS. XTH.

Among the earliest recorded varieties of the common lilac is the single white form *S. vulgaris alba*, and a reddish known as *rubra major* or *Syringa de marlèy*. The first of the double forms, which are now so numerous and popular, was brought out in 1870, and since then most of the very best sorts now so much admired have been produced.

More than fifty varieties of *Syringa vulgaris* are included in the collection at the Central Experimental Farm embracing all the newest and finest sorts. As yet only a few of these have bloomed and every season reveals new attractions in this wonderfully interesting group. Among those which have bloomed are some superb varieties, a few of which will be referred to. The illustrations given are all from specimens grown at the Central Farm.

S. v. Charles 10th. A specimen bush of this fine sort is shown in Fig. 1582. This is one of the freest bloomers of all the varieties thus far tested; the flowers are of a rich reddish purple hue, are highly fragrant and are most freely produced in large trusses. A bush of this sort when in full bloom becomes a striking and most interesting object. This variety has been thoroughly tested in the most exposed situations and is thoroughly hardy.

S. v. Emile Lemoine. In this form an example of which is shown in Fig 1583 the flowers are of a reddish lilac, very full and double, a handsome and valuable sort and a free bloomer; one of the best.

S. v. Frau Damman. This is a pure white single lilac of great beauty. The flowers are produced in large trusses which are loose and graceful. The bush is also a very free bloomer. A single cluster of bloom is shown in fig. 1584.

S. v. Alphonse Lavelle. A flower truss of this variety is shown in fig. 1585. It is a very handsome form, the flowers are of a beautiful bluish violet color and are produced in abundance in very large panicles.

S. v. President Carnot. This is an excellent sort which produces fine trusses of large single reddish lilac flowers, clusters of this variety are shown in fig. 1586.

S. v. Madame Abel Chateau. This is perhaps the finest of all the flowers yet produced at Ottawa in this wonderful group of lilacs. The panicles are large and the individual flowers of unusual size, of a pure white very double and of great substance. It is also a free bloomer. A single cluster is shown in Fig. 1588.

FIG. 1583.—S VULGARIS EMILE LEMOINE.

Syringa Josikea, Josika's Lilac. This is a robust growing species, a native of Hungary, which was introduced into cultivation in 1588 and is now very widely distributed. Its leaves are large glossy and of great substance of a deep green color above and paler below. This shrub is well worth growing for its foliage alone. The flowers which appear from ten days to a fortnight later than *Syringa vulgaris*, are of a bluish purple, the clusters are smaller than those of the common lilac, they also lack perfume. When well established this variety blooms very freely and attains a height of from 6 to 10 feet. It makes a beautiful hedge, its rigid habit and glossy laurel-like leaves produce a fine effect. For this purpose young plants should be chosen and put out in a single row about 15 inches apart.

Syringa Persica, the Persian Lilac. This species is a native of Persia and was introduced in 1640. It is a shrub smaller in size and less robust in habit than most of the other species, growing usually from four to six feet in height. The flowers which are borne freely in good sized clusters, are bluish purple; another variety of the Persian lilac produces white flowers; both these forms are common in cultivation. This species is not quite so hardy as most of the other lilacs. A cut leaved form *S. P. laciniata* has also been produced.

Syringa Chinensis known also under the name of *S. Rothamgensis* or Rouen lilac. This is a very desirable shrub, well known and much appreciated. It was introduced into cultivation in 1795 and is said to be a hybrid between *S. vulgaris* and *S. persica* which was raised at Rouen by Mr. Varin then director of the botanic garden there. This variety is loose and graceful in

FIG. 1584.—S. VULGARIS FRAU DAMMAN.

habit, the foliage is intermediate in size and form between the common lilac and the persian, the flowers which are of an intense purplish violet color are borne in large clusters produced in abundance. Our frontispiece shows an example of this shrub in bloom.

A form of *S Chinensis* is also in cultivation known as *S. C. Saugeana*, the flowers of which are of a reddish purple color.

Syringa Emodi—From Mount Emodus in the Himalaya mountains. This species was introduced to cultivation in 1840, and is quite distinct in its character. It grows to a height of about six feet, and is somewhat rigid in form. The leaves are considerably larger than those of the common lilac, with the underside more prominently veined, and the flowers which are purplish or white are arranged in longer and looser panicles. A form of Emodi with variegated leaves has been introduced, which is quite attractive. Both of these have been found less hardy than the common lilac at Ottawa.

Syringa villosa, is a native of the northern parts of China of quite recent introduction, having first been brought into notice in 1880. It is lower growing than many of the other sorts of lilac, varying in height from three to six feet. The leaves are of medium size, ovate in form and rather obtuse, the flowers are of an attractive shade of pale bluish rose less fragrant than those of the common lilac. This shrub is a free bloomer, but the flower clusters are not so large as in some of the other varieties. Its time of blooming is about two weeks later than the common lilac, it has been tested for four or five years at Ottawa and found to be perfectly hardy.

Syringa oblata. This handsome variety has not yet found its way into very general cultivation. It is a native of China and was introduced in 1859.

The leaves are large and wide, oblate or heart-shaped, and rather thick and fleshy. The flowers are purple, larger than those of the common lilac, and produced in large and handsome clusters, which are very attractive. In its habit of growth this species much resembles the common lilac. There is a form of *oblata* which produces white flowers. The purple variety has been tested for several years at the Central Farm at Ottawa, and has been found quite hardy.

FIG. 1585.—S. VULGARIS ALPHONSE LAVALLE.

Syringa Amurensis is a native of Manchuria, China and Japan, and is common in the valley of the Amour. It was introduced in 1863. This shrub has a somewhat spreading habit and a graceful form, and grows to a height of from six to eight feet. The flowers are small, creamy white, and produced in panicles of varied form, some being short and compact, others long and sparsely flowered. It usually blooms during the third week in June. This is a hardy and desirable species.

Syringa Japonica. This is a native of Japan and was introduced to cultivation in 1885. It is the latest in blooming of all the lilacs and does not usually flower in Ottawa until the first week in July. The flowers are small, creamy white, and are produced in large dense clusters. They have a fragrance quite distinct from the ordinary lilac, reminding one of the hawthorn or the privet. The leaves are large and of a dark green color. This species grows taller than *Syringa vulgaris* and forms an attractive tree-like specimen.

With a judicious selection of the species and varieties referred to one may have a succession of lilacs in bloom for from four to five weeks.

WM. SAUNDERS.

Ottawa

STOP THE WASTE.

FIG. 1586.—S. VULGARIS PRESIDENT CARNOT.

IN THE fruit industry the waste often consumes the profits. An inopportune rain or wind at the time when the fruit is just ripening often ruins the hopes and anticipations of a whole year. The failure to use the right kind of a package, and to make the fruit look its best in it, often degrades the quality, in the estimation of the buyer, from first to second class with the corresponding reduction in price. The crowded market of Saturday often leaves on the hand of the grower a few crates of berries which are worthless when the market ripens on the following week. The insects somehow find their way to the fruit, and just at the time when it should ripen, we find that it is ruined. Nine cases out of ten of failure in the fruit business come through loss due to waste.

The successful fruit grower must learn early in his career that his products are at all times tender and quickly perishable. He must, so far as he is able, prevent the contact of any agent that destroys or reduces the value of his fruit. This is not something that is beyond his power. By a vigilant war against insects he can greatly increase the quantity and improve the quality of the crop which he is to receive.

Cold storage affords one of the most practical means of preventing waste in the fruit crop that we have. Apples that fall from the tree when almost ripe, and are lost, are frequently ripe enough to be picked and placed in cold storage. The fact, that apples for cold storage should be picked while solid, is valuable information to those who realize that their fruit is dropping badly while in that state. An ice and cold storage house on the fruit farm is of immense value in preventing the waste in summer fruits that comes naturally through rapid decay. Berries, cherries, plums, and peaches can be kept a number of days, even weeks, and there is thus afforded ample opportunity for using or disposing of them. W. L. HALL, *Kansas.*

FRUIT PULP.

IN view of the excellent demand this season for this article in Great Britain, and the efforts having being made by a committee appointed by our Association to make extensive trial shipments of raspberry pulp, our readers will be interested in the following from the Agricultural Gazette c New South Wales.

FIG. 1587.—S. VULGARIS LOUIS VAN HOUTTE.

Pulping is a very simple and efficacious method of preserving fruit for storage or transit, to be converted into jam at some later date. When one considers the thousands of tons of fruit that literally rot and are wasted in these colonies simply from lack of the adoption of such simple process as pulping, one is apt to accuse the Australians of being neglectful of their opportunities. If a good class of pulp were placed on the London market instead of letting your fruit rot on the ground it would give you a very remunerative return. Now, I am not going into figures; I will leave that to a more mathematical pen, and a head better fitted to statistics to convince you of this fact. All I say is it will pay, and pay well, as some of the more enterprising Australians have shown. The fruit is gathered in the same condition as for canning (that is, firm, yet ripe and sweet); at the same time there is no waste, as the over-ripe fruit may be used as well.

All the stone fruits are pitted and placed in a steam-jacketed kettle, a little water added. The whole mass must be constantly stirred, no sugar being added. Now, the most essential thing in pulping is the cooking. The old theory of cooking merely for the expulsion of the air has exploded, and we find that the pulp must be cooked for such a time as to kill all germs of fermentation.

Immediately the pulp is cooked it is placed in tins and the caps soldered down, care being taken to fill the tins to the brim, the size of tins generally in use being 10lb. tins, these being round, and 45lb. tins being square. If, after the tins have been closed down, any of them exhibit signs of swelling, it is a

FIG. 1588.—S. VULGARIS MADAME ABEL CHATEAU.

sure sign of insufficient cooking. The pulp from these must be emptied out and re-cooked for as long as originally; in fact, a few minutes longer. It is quite optional as to whether you peel your fruit for pulping or not.

The time required for cooking the several kinds of fruit for pulping is as follows: Apricots, about 25 minutes; peaches, nectarines, plums, soft pears and cherries, about 30 minutes; figs, hard pears, quinces and apples about 35 minutes. These periods for cooking do not apply to every condition of the fruit; you will only become perfect with practice; at the same time they are sufficiently adequate to start from.

Now, supposing you are the recipient of a tin of pulp, and you wished to convert it into jam. For every pound of pulp add about ¾lb. of sugar, and boil for about 30 minutes.

THE HONOR BRIGHT AND OTHER TOMATOES.

Mr. R. Brodie, of Montreal, sends us the following note about tomatoes:

Mr. J. Caven, Columbus, O., advises a small trial of the Honor Bright tomato. With us it is a heavy cropper, but too late a variety and ripens very little of its fruit. I tried a few bushels (in the yellow stage of ripening) in my cellar, and they did not ripen as well as the Beauty alongside. My selection of tomatoes would be: for 1st early, Henderson's Ruby; it is the largest and best extra early tomato. $500 worth was sold off two acres in one week, about the 20th July last year.

In the purplish crimson varieties, Rennie's Canada is a splendid tomato. The Imperial is a little earlier, but not so large or as heavy a cropper. Livingstone Beauty is a very close third.

In the scarlet tomatoes, Ignotum and Livingstone Favorite are two very good varieties.

Most of the red varieties are subject to crack round the stem.

DISHONEST APPLE PACKING.

SIR,—In your article on "Packing Apples for Export" in March number, you go out of your way to recommend legislation to hamper the apple growers of this country. You advocate a size test for apples of all varieties, putting Snows, Russets and Spitzenberg, etc., in the same category as Spys and Baldwins, which you must admit is impracticable.
W. F. FISHER, *Burlington*.

Our article on this subject was not intended as final by any means, but simply to invite discussion from our readers. That something is necessary is evident from the heterogeneous collection of grades and sizes now being shipped by Canadian fruit growers. It will surely not *hamper* our growers to impose such legislation as will tend to bring about some uniformity and system in packing our apples and other fruits, so that foreign buyers may buy Canadian stock with greater confidence, and consequently at higher prices.

Of what use will it be for A and B to grade their apples to a uniform size in the barrels, and send all that will pass through a 2½ inch hole as "Seconds" to the evaporator, or to the cider mill, if C and D *will persist* in facing up the heads of their barrels with 3 inch apples, and in hiding, beneath the two top layers, apples of all sizes, from 3 inches down to 1½ inches. C and D may possibly get as good sale for their car as A and B, but the buyers who are robbed will class A, B, C and D all together as Canadian rogues, and give them a wide berth next season, and all will suffer for the dishonesty of one or two. Now, it is not simply the interest of two or three, but the interest of the thousands of honest apple growers in Canada which we wish to champion. And have we not a right to insist on honest packing, and insist upon inspection and confiscation of dishonest packages, just as much as in the case of short weight loaves of bread. We grow in Canada the finest apples in the world, both in color and in flavor, and the markets of the world are just opening to us; they want all our apples, and will pay top prices if we will but assure them that they are uniform in size and No. 1 in quality.

Perhaps somebody may say inspection is not necessary—it is impracticable—let every man ship his own apples under his own name, and all will come out right. Indeed! Will it? We beg to differ. The steamer *Castilian*, which was wrecked the other day off Yarmouth, N.S,, carried 6,500 barrels of CHOICE CANADIAN APPLES, packed for the British market, the heads of the barrels were decorated with XXX, and with the names of the shippers. These apples were saved and sold in Yarmouth, wet apples bring $1 per barrel, dry $3, and some of the readers of THE CANADIAN HORTICULTURIST there are taking notes as these are opened, and are reporting to us the honest and the dishonest shippers; but we mercifully suppress the names. Mr. Chas. E. Brown, of Yarmouth, an honored life member of our Association, sends us six samples from a barrel of *Phœnix apples* marked XXX!! and we have photographed their *exact size*, that all may see whether an inspector is needed or not. (Fig. 1589) Not one of these apples are even two inches in diameter, and we maintain that *no apples*, not even Fameuse apples, should be marked grade No. 1, which are below 2½ inches in diameter. Crabs, Lady apples, etc., are not in competition and need not have the regular grade mark, and the same may be said of even small-sized Fameuse, or Swazie Pommegrise. Our Burlington correspondent objects to Spitzenberg, Snow and Russet coming under these grades, but if he will take the trouble to measure these apples he

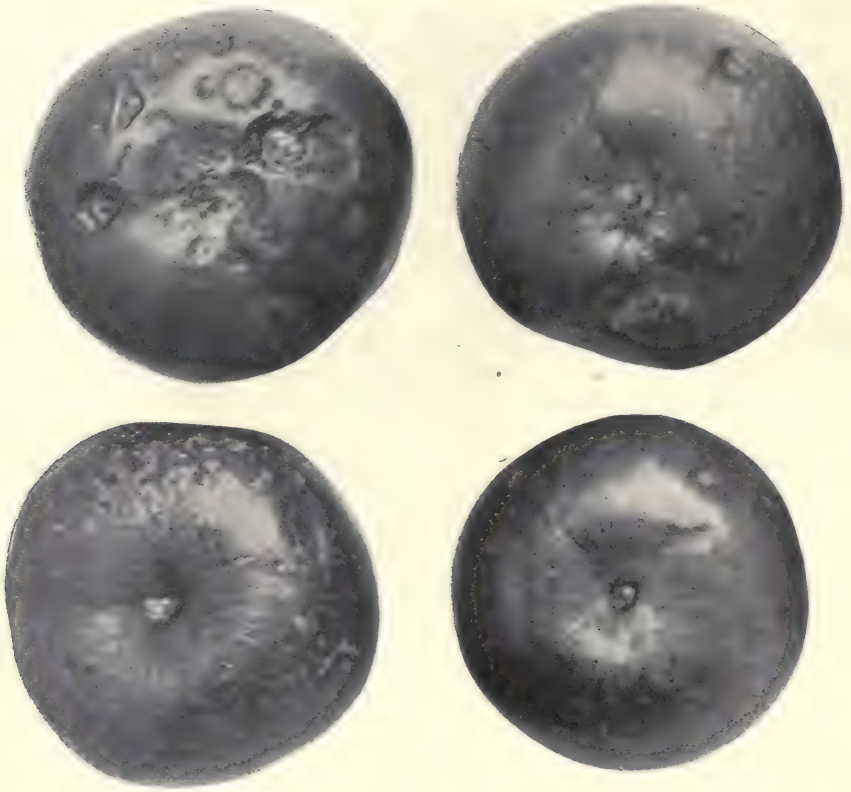


FIG. 1589.—EXTRA SELECTED ! Apples From Wrecked Str. Castilian.

will find that they will average 2½ and over, while Spy often reaches 3½ to 4 inches, and would deserve to be marked Extra No. 1. If preferred, however, grade marks and size marks might be separately indicated on each barrel.

Mr. Chas. E. Brown, writes :

It is now probably twenty years since we began to import Ontario apples to supply the local market ; latterly, one or more car loads came every fall, via Boston, at the low through freight rate of sixty cents per barrel Occasionally, there would be a few barrels in a car load that failed to come up to the standard of No. 1, but on the whole, we got to feel confidence in Ontario Fruit Growers, Packers and Shippers, that a barrel of apples marked Extra, Fancy, or No. 1, meant a quality of fruit that the buyer would have no cause to complain of. This confidence has however been recently sadly shaken, and hereafter in Yarmouth, it will not be enough to say to a prospective buyer that his barrel of apples was exported from Ontario, grown or put up by ———— and marked XXX or Extra Extra Extra. I enclose a slip from yesterday's local paper, and I send you in a small box a few specimens from a barrel of Phœnix apples that I bought myself, in confirmation of the statement made.

Extract from Yarmouth Herald.

Some years ago complaints were made frequent and often, of the dishonest packing of apples by the growers of the Annapolis Valley, but we are pleased to note that for the past two years these complaints have been few, and, in fact have almost entirely ceased, so far as we can ascertain.

There were on board the wrecked *Castilian* some 6,500 barrels of Ontario apples. Many of these have been saved and sold at auction. In several instances the fruit has proved first-class in every respect, and of even size all through. But we regret to state that many barrels have been of the most inferior kind. One or two of the top layers look fine, but after these have been removed the remainder have turned out to be scrubs, and the size as small or smaller than crab apples. They are totally unfit for table use, and would hardly pay to gather to feed to pigs.

We are surprised to know that such dis-

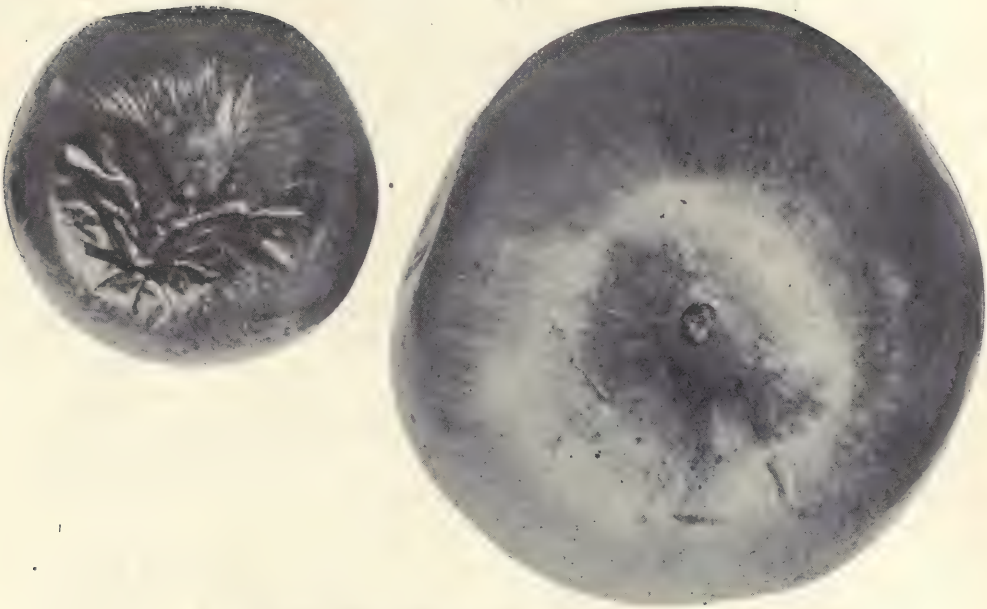


FIG. 1590.—SPYS from top and middle layer of barrel.

honesty prevails in Ontario, as this would indicate. It not only injures the sale of fruit from that province, but as each barrel has "Canada" branded upon it, also affects the sale of apples from our own province of Nova Scotia. It is time that some law was passed for the inspection of apples for shipment to the English market, and the punishment of such dishonest packers.

As a consequence of the fine appearance of some of the barrels that were opened at the sale, a good price was realized, but several of the purchasers, upon examining their lots, were very indignant at the dishonest packers of the fruit.

As a Life Member of your Association, I regret extremely such a suicidal policy as these mean shippers are pursuing, packing apples for the English, or for any other market, that are not even worth the barrel they are packed in, and so far from there being any chance for profit in such a business, I do not see how they can escape a claim for freight and charges beyond what the apples can possibly bring.

I read with much interest THE CANADIAN HORTICULTURIST that comes with great regularity, and always contains something to instruct and entertain.

Since writing the above, we have received another letter from another gentleman in Yarmouth, N.S., with an accompanying package containing two apples from a barrel he had purchased, belonging to the same ill-fated cargo. He gives the name and address of the packer, who lives in a prominent apple growing section of Ontario; but the names we withhold in the meantime.

We have photographed these samples also, natural size, and think the expense of so doing justifiable in the interest of Canadian fruit growers. Mr. Geo. H. Guest, Sheriff, Yarmouth, N.S., who sends these samples, writes:—

You will notice a great difference between the second layer and one farther down. The top layer was better than the second. I always had an idea that the very best was sent to the English market, (where these were intended for by *S. S. Castilian*)

As I get down in the barrel they are all about like the small sample, and badly bruised. Such rascals should be exposed.

THE PEACH ROT AND CURL LEAF.

FOR a long time it was supposed that the rot of cherries, plums and peaches was entirely climatic, being directly the result of continued wet weather. Now it has been clearly proved that this evil is caused by a fungus called *Monilia fructigena*, which grows readily in hot moist weather, and very slowly in dry weather. In California this rot of the cherry and peach is little known, because the climate is so dry it cannot grow ; and as a result, their cherries are shipped to eastern markets in good condition—varieties too which, with us, often rot on the chief consideration, for the present, is that the rot fungus is always found in the decaying fruits. We may rightly, then, turn attention to the fungus in question. Fig. 1591 will show something of the character of this fungus. At 1 are shown two rotted and dried up "mummy" peaches which were gathered in midwinter. Upon wetting and placing these in a moist chamber for twenty-four hours, it was found that the fungus still lived in the mummies. Some of the forms of threads are shown at 2 *a*, *b*, *c*. At the same time a great abundance of ash-colored spores was

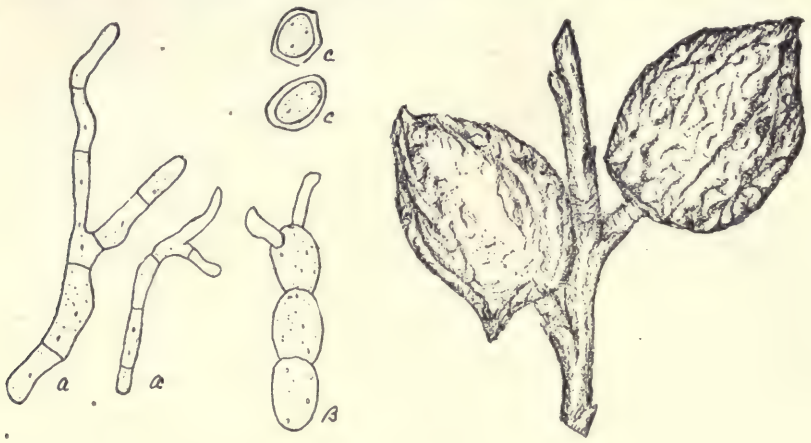


FIG. 1591.—

Monilia fructigena in mummy peaches. At 1, midwinter mummies are shown, natural size. 2 *a*, *a*, *b* threads and resting cells or *gemmæ* (?) *c* from the preceding, both magnified about 760 diameters.

trees, or will scarcely keep over night.

Bulletin 92, of Ohio Experimental Station gives some interesting information concerning this rot, as follows;

This rot fungus, as indeed have most fungi, has its growth favored by warm, or hot weather, and abundant moisture. If this warmth and moisture come together near ripening time we may expect serious loss of fruit. But the produced upon the outside of the rotten peaches. Similar results may be had if one places a freshly rotted peach under a tumbler or dish where it will be kept moist. These ash-colored, powdery masses of spores are easily scattered by the wind and rain and will cause mischief where they find a suitable place. Favorable places are numerous; such will be found in a dense cluster of fruit

or where the fruit is densely shaded by leaves in contact; and in case of warm, April showers at the time of blossoming, these spores from the mummy peaches may enter through the blossoms and cause sad havoc in the form of twig blight. It may be a matter of surprise to some to hear that this rot fungus destroys the twigs and blossoms of the peach. But close observers in the orchard at harvest time have often called my attention to the death of the twigs and branches bearing rotten fruit. Yet, even these observers have usually missed the early spring blighting of twigs and destruction of blossoms. Unquestionably this fungus is responsible for the injuries just named. Therefore, in dealing with it we must know where and when to strike.

It is first to be observed that the loss of fruit from the monilia is much more a matter of weather conditions than is even usually supposed. We are accustomed to find much rot among early varieties like Hale, Alexander and Crawford's Early, and are consequently likely to call these susceptible varieties. The large grower sometimes finds that Smock and Salway show the greatest losses. A large amount of rot in any variety may be expected during hot, wet weather at ripening time, and there seems no sufficient reason to regard early sorts, on the whole, as more liable to rot than late sorts. As before stated, the favorable conditions determine the amount of rot, though it may also be true that these conditions more commonly occur about the ripening time of the early varieties. Late varieties succumb when met by hot, rainy weather at ripening. To induce rot, the spores of the fungus must gain entrance into the peach, and a decided difference in the texture of the peach skin would have some effect. This difference, however, may be given too much weight. The pin punctures of the curculio with early peaches as with plums are a fertile source of rot infection.

THE PREVENTION OF PEACH ROT.

As shown above the rot fungus survives the winter in the mummy peaches; and the same holds true for mummy plums and cherries, since the same fungus is found in all the stone fruits. To what extent it may survive in twigs cannot be stated. The resting forms of the fungus are shown above, Fig. 1591, 2, *b*, *c*. All that is needed to induce their growth is a period of warm, rainy weather, such as commonly comes in April and May of each year. So long, therefore, as the mummy fruits are permitted to remain on the trees, we must expect an abundance of rot fungus and the losses it causes. All rotted peaches should be removed from the trees as soon as they appear, and before the advent of spring rains. This is the first step in preventing rot. If these are permitted to remain on the trees over winter, they should be burned when gathered; the better plan is to remove the rotten fruits as they appear in the fall, or in early winter, when they may be dropped on the ground.

Without this destruction of the mummy fruits, other methods will not be likely to succeed, though the disease may not succumb to this alone. Chester* has conducted experiments in spraying peach trees for the prevention of rot. Results of the second season show a three to four fold increase of sound fruit on sprayed trees of Hale and Early Rivers. In this work Bordeaux mixture and Paris green is recom-

*Bull. Del. Exper. Station, 34.

mended to be used just before the blossoms open, Bordeaux mixture and Paris green when the fruit has set, copper acetate solution (8 oz. to the barrel) when the fruit begins to color, and a repetition of the treatment in case of weather favorable to the rot.

The prompt removal of rotted fruit is urged under all circumstances; spraying may or may not prove profitable. The careful thinning of the fruit may also be sometimes helpful in preventing rot.

FIG. 1592.—

PEACH CURL.

Every year we add a little to our knowledge of the fungus disease of our fruit trees and learn better how to destroy them. The leaf curl was for many years thought entirely uncontrolable, and peach growers viewed with much alarm the wholesale destruction caused by it in 1892, 1893, 1897 and 1898, when the abundance of cool rainy weather in April and May favored its development.

The leaf curl has been proved to be caused by a minute plant parasite, *Exoascus deformans*, which attacks both the leaves and the new shoots, thickening and distorting the former and enlarging the latter. The hyphae of the fungus is easily recognised under the microscope, the cells being more or less triangular or wedge shaped. It lives through the winter in the leaf buds, and

in the spring when the growth starts the fungus also starts to grow, and the young leaves and shoots are affected with it. It is evident, therefore, that this disease can only be routed by persistent application of fungicides year after year, by cumulative effect, if we like to call it so. Results obtained from spraying at the Ohio Station led to the following conclusions:

1. That two applications of the Bordeaux mixture in a season favorable to curl leaf, will sufficiently prevent the disease to enable the tree to carry a crop of fruit without very great loss through dropping.

2. That unsprayed trees, in a season like 1897, especially of varieties susceptible to curl leaf, can scarcely carry the crop of fruit when suffering from such injury to the leaves.

3. That thorough spraying the preceding season is even more effective in the prevention of curl leaf than during the season of its occurrence.

The orchardist must judge by the weather in April, whether to spray, for upon such susceptible varieties as Mountain Rose, Old Mixon, Globe, Elberta, etc., two sprayings with Bordeaux mixture will prove profitable; the first of full strength, made just before the blossoms open, and the second of half strength, to be made just after the calyx drops.

HARDY FLOWER GARDENS.

THESE are the matron's safe guard. If the house master is called away for the summer, or is ill, she has a never-failing source of pleasure in the thought that flowers will bloom in the home grounds if she is unable to tend them. The old gardens of our fore-beares were always bright, and the lesson of the past is also a good one for the present. So many added treasures too, lie at our hand. The Gypsophila alone with the hardy Asparagus Broussoneti is an acquisition. And what is finer about the walks than a bed containing Rosemary, Southern-wood, Lavender, Digitalis, Daisy, Campanula, Linim Centaurea, Gaillordia, Humilus, Stevia, Dictamnus, Pensteman, Verbena, Hollyhocks, Bartonia, Aurea, Vaterian Acquilegia, etc. With a large variety of these and a good rose bed, we need never lack bloomers, no matter what befals us. God has made these flowers to be of service in our lot and place, and we may carry the balm of consolation through them to many wounded suffering hearts if we will.

Let us prefer them to fine feathers if we are unable to enjoy both, and so make the grand garden of life to blossom as the rose.

One of the new Rambler roses in the house is a treasure, and if nipped in the bud by the frost, it will soon grow glad and bright again.

M. AGATHA HOSKINS.

Newport, Vt.

THE GOOD WORK IN PRINCE EDWARD ISLAND.

FIG. 1594.—REV. A E. BURKE, P. P., Alberta, P. E. I. Director F. G. A.

WE feel sure that the members of the Fruit Growers' Association of Ontario, the mother and mistress of all such associations in Canada, will learn with interest something of the work which the daughter society so recently organized in the little Garden Province of Prince Edward Island is doing for the advancement of horticulture within its borders.

The strangest thing about this Prince Edward Island movement seems to us to be its tardiness. To think that not till the year of grace 1898 was any properly organized effort made to tempt a foreign market with our fruit, although we had stood before the world for almost a century as the abundant producers of the best roots in Canada, a superior quality of grains and horses, cattle, sheep, pigs and poultry equal to the best! But the answer to this wonderment is easily accepted when we state that no provincial organization vowed to the fostering of the fruit industry and its development was established here until 1896, when our far seeing, energetic and patriotic governor, Hon. G. W. Howlan, convinced himself by what he saw of the fruit put on exhibition at the county shows which he had officially patronized and opened, that we could grow excellent apples and grow enough for ourselves and enough also to fill a big hole in the British trade. Previously even the fruit consumed in the Province was imported from the United States, from Ontario and from Nova Scotia. It is safe to say that the day of importation is now over and that the fruit growers of the Island will put themselves into sharp competition with the two above named provinces in the great British market.

Although scarce a decade has flown by since a premier of the Province from his place in our local parliament boldly asserted that good apples could not be grown in Prince Edward Island, we have

been able to demonstrate on the authority of the expert buyers of London, Liverpool and Glasgow that no superior fruit of the kind forwarded has been put on these markets. And their testimony is no empty sound. We have the money jingling down in our pockets from satisfactory sales made there this autumn. We have been largely working in the dark up to the present, planting the trees for years aback palmed off on us from all sources—some, indeed the great majority of them, untrue to name and inferior stock from all points of view,—unloaded here at big profit because a more discerning class of buyers in Ontario or Nova Scotia cast it out entirely. Thus with all these drawbacks we have gone ahead remarkably in the science of pomology and demonstrated to the most hardheaded community to convince at all times, our own Island, to its evident surprise and amazement, that we can grow superior fruit. It takes time to effect changes in public sentiment; we have certainly experienced this tardy process in horticulture here. But as the French proverb says: "*Le monde s'agite et Dieu le mene.*"

Brought together by the public-spirited Governor, our fruit raisers and their friends formed the "Prince Edward Island Fruit Growers' Association." The first meeting was not promising but the Governor persevered. Interest in the matter having seized others of the professional community and the good work of the Ontario Society having been brought to the notice of all concerned, a more enlightened essay was made last year and, as a consequence, the Association was established on the same plan as that of Ontario, to which it was affiliated and incorporated in due course by Provincial statute. A moderate grant was also secured from the Government for the Society and the HORTICULTURIST became its organ.

FIG. 1595.—REV. FATHER BURKE'S PRESBYTERY, ALBERTON, P. E. I.

The first annual meeting since reorganization took place at Charlottetown on the 21st of March last. The sessions were attended by the Lieutenant-Governor, the Premier, the Mayor, judges, clergymen, professional men and merchants, besides the most enlightened and cultured element of the agricultural community. The President, Edward Bayfield, Esq., presided, while all the officers were in their places and about all the members except Senator Ferguson, engaged in the session at Ottawa, were present.

In the interval between meetings the Association had expended much energy and employed its grant in making a trial shipment of Island apples to Britain, as a practical test of the Island's capabilities in fruit-growing, and to ascertain if shipments of this fruit would be sufficiently remunerative to make orcharding an avocation for the money that it affords.

The Government wishing to keep abreast of the Association and help trade in other directions, sent the Treasurer of the Association, Joseph Wise, Esq., M.P., as a commissioner to England to study the markets and report thereon. One hundred and eight barrels of apples shipped under the per-

FIG. 1596.—HON. G. W. HOWLAN, Governor of P. E. I., Patron F. G. A.

sonal supervision of Hon. Senator Ferguson, who went to Nova Scotia to become acquainted with apple packing, and Messrs. Robertson and Sharp, two of our largest orchardists, were first selected. A steamship more or less suitable to the carriage of perishable fruit, called the Lake Winnipeg, was subsidized by the local Government and came direct to Charlottetown for the fruit consignment and the large cheese, butter and cattle cargo awaiting her. The apple shipment was made up of King, Spy, Golden Russet, Ribston, Baldwin, Alexander, Wealthy, Wolf River, Bethel, St. Lawrence, Fameuse, and Nonpareil. It will be seen at a glance that we were tyros in apple shipping business, as no regard was had for season, the whole range of fall and winter varieties being sent on at once. Well, notwithstanding this and many other disadvantages, which necessarily menace a trial shipment, our fruit did wonders,—was praised most lavishly by the British dealers, and orders for unlimited quantities forwarded to us. Especially were we surprised at the prices our Alexanders fetched, netting us $3.05 after paying the exorbitant charge of 76 cents per bbl. here and the expenses on the other side. We can grow this apple in Prince Edward Island as easily as we can grow turnips, and if it will maintain anything like that price on the Home market, can make big money raising it. The other varieties also brought, one with the other, encouraging prices. This shipment on the part of the F. G. A. opened up the trade to Island apple raisers and impaired by only a very few dollars the Society's grant. It was followed by further consignments on private account on the succeeding steamers with a result that the whole Province is enthusiastic over the new industry which has sprung up as if by magic on its fertile shores.

Mr. Commissioner Avise made report of his investigations in London and Liverpool at the Annual meeting. He found a solid demand for P. E. I. fruit, which to be maintained and improved required better packing and shipping facilities and the continuance of honest methods; he said some of the trash branded "Canadian Apples" he was heartily ashamed of.

To secure the success of the Canadian apple trade the P. E. I. F. G. A. is co-operating with the Ontario F. G. A. in asking the federal government to appoint inspectors and exact proper shipping facilities for fruit at the ports of departure. The writer had the great pleasure of moving a resolution at

Charlottetown which we all hope may materially strengthen your hand in obtaining this boon.

The discussion which followed the reading of valuable papers at the different sessions of our Association meeting turned very often on suitable varieties to plant. A great diversity of opinion obtained. Like the owner of a good horse who is ever ready to aver him the best in the place; so each possessor of a good variety would have to head the list, as the best apple to grow. A considerable number of things was taken down by the secretary; and Jno. Robertson, Inkerman Farm, D. P. Iwing, Cherry Valley, and the undersigned, appointed a committee to take into consideration all the circumstances—growth, productiveness, vigor, quality of fruit and price fetching in England, etc., —and classify a sufficiently extensive list that could be recommended to the people as worth planting. After much deliberation we agreed to recommend for the Inland trade, Duchess and Gravenstein, for fall use; and Wealthy, Baldwin and Ben Davis for winter and late keepers. For export we made a list in the order named, Alexander, Ben Davis, Wealthy, King, Golden Russet, Ribston Pippin, Nonpareil, Mann; our list was unanimously accepted by the association. It will be seen at a glance that the money-making feature is kept well to the front in this export table. Of those different varieties in particular as suited to our Island, we may have something to say in a later issue.

This article has out-grown proper limits and therefore we shall simply give you the names of our new officers, state that we are expending our grant in top-grafting good varieties on unprofitable orchards and going to work in earnest to emulate the example of your splendid Ontario Association, in so far as restricted circumstances will permit. And after our esteemed governor there is nothing to which we owe more for our present prosperity than to your grand association and its live and learned secretary.

Officiality for 1899-1900:—Patron, Governor Howlan; President, Senator Ferguson; Vice President, H. A. Stewart, Hamilton; Secretary, P. McCourt, Charlottetown; Treasurer, J. Wise, Milton.

Directors. Prince County—Rev. A. E. Burke, Alberton; C. R. Dickie, Muddy Creek; R. Carruthers, Cape Traverse.

Queen's County—J. H. Gill, Little York; John Johnston, Long River; J. G. McCallum, Brackley Point.

King's County—John Robertson, Inkerman; J. D. Stewart, Lower Montague; G. E. Goff, Woodville.

With fraternal greetings to the fruit growers of Ontario.

A. E. BURKE.

PATCHING UP THE LAWN.

This, too, is the time for sowing grass seed, so these filled spaces should each have a handful of seed sprinkled over them, raked in lightly, and then firmed with the foot or spade. All through spring, when we can work between showers, we are patching up the uneven or the bare places on our lawn in this way. If the old turf is dead, it must be removed or have some fresh soil scattered over it. We sprinkle these patches every few days if the clouds are not obliging.—*Vicks Magazine.*

CULTIVATING vs. CROPPING ORCHARDS.

FIG. 1596—Trees in sod and in cultivated ground.

EXPERIMENTS have been concluded in various parts of the Continent by experiment stations to settle the question whether an orchard should or should not be kept cultivated. The result is in favor of clean cultivation unless in exceptional instances. At Cornell it was shown that while the roots of apple trees in sod were at the surface, in cultivated land they were at least 8 inches below the surface. At Nebraska the effect on growth was shown very clearly. The report says:

"Trees in cultivated ground suffered noticeably less from the drought and hot winds of summer than those in sod ground. The foliage was darker and more vigorous in appearance, and there was no yellowing and dropping of the leaves nor wilting during hot windy days, both of which occurred with uncultivated trees. Apples from cultivated land averaged nearly 14 per cent larger in weight than those from pasture land and over 17 per cent larger than those from mowed land."

An Illinois station report also shows marked results from clean cultivation.

"In 1890 three rows each of Ben Davis and Grimes Golden apples were planted, the trees being set 15 feet apart each way. These were divided into 4 plats, the first being given clean cultivation and the second, third, and fourth being cropped with oats, clover, and blue grass, respectively. The same treatment was continued each year after planting. The trees grown on the grass plats were decidedly inferior to those grown on the cultivated plat as regards height, diameter of trunk, vigor, and abundance of foliage, etc. For instance, in the case of the Ben Davis trees the diameter of the trunks 1 foot above the surface of the soil was about twice as great in the case of the cultivated plats as in case of that in grass. Similarly the height of the trees in the two plats averaged 18¾ and 11 feet, and the diameter of the tops 15⅝ and 8¼ feet, respectively. In the growth and vigor of trees, the clover plat ranked next after the cultivated plats, and the oats plat ranked between the clover and blue grass plat. An examination of the root systems of trees on the different plats also showed the superiority of clean cultivation, especially over cropping with oats and grass. In the cultivated plat the root system was compact and reached a considerable depth, while in the oats and grass plats the roots grew shallow and ranged widely from the tree. There was also a difference in the moisture content of the soil in the different plats. In the latter part of October, 1897, the average percentages of moisture in the first 27 inches of soil of the various plats were for the cultivated and corn plats 12, for the clover plat 10, and for the oats and grass plants 8. The effect of the different treatments is seen in Fig. 1596 which shows a typical tree from each of the 4 plats.

The injury caused by growing grass in young orchards is shown very emphatically by an experiment conducted at the Utah Station. Parts of an orchard were seeded to alfalfa, timothy, clover, and a mixture of timothy and clover soon after the trees were set, and other parts were cultivated, all being irrigated alike. Over half of the trees in the grass plats died and were reset twice, while the cultivated trees lived and grew well. It is not to be expected that growing grass in young orchards is always as injurious as it proved to be at the Utah Station, yet the reported experiences of fruit growers and experimenters everywhere show the import-

ance of carefully cultivating young orchards. Even in a climate as moist as that of England grass proves very detrimental to young trees. At the Woodburn Experimental Fruit Farm a mixture of grass recommended for orchards was sown around young apple trees and other trees were cultivated, the two lots being treated alike in other respects. The second year after sowing the grass and trees in the grass plat made 35 to 41 per cent less leaf growth and 74 to 87 per cent less wood growth than trees in the cultivated plat. In the case of dwarf trees bearing fruit for the first time the grass reduced the yield 71 per cent in weight and 82 per cent in value.

These are clear indications of the road to success in orcharding to which we must not shut our eyes; for if we are to attain success in our chosen line it is only by producing the finest products. Too long already have Canadian orchards languished in sod, showing in consequence enfeebled growth, and becoming an easy prey to borers, moss, and bark lice; whereas vigorous trees resist these evils, and grow fruit of large size and fancy grade.

A NEW BERRY CRATE.

FIG. 1597.—A NEW BERRY CRATE.

SMALL fruits have lately brought such low prices in our markets that fruit growers find it necessary to economize in every particular, in order to make the balance come on the right side of the ledger. We therefore gladly give prominence to any invention which promises to be an advantage to our readers such as the new crate, now being introduced by Mr. E. H. Cleaver, of Burlington.

Samples were brought us a few weeks ago and we were pleased with the simple method for fastening the cover, and of removing the same for the showing the fruit, also with the low price at which they were offered.

The cut shows three sizes, 12 qt., 24 qt and 36 qt crates, and Mr. Cleaver calls attention to the following points.

1. The ventilation.

2. The strength of the interlacing corners.

3. The shelving with thick cleats, keeping shelving off the fruit, to admit top dressing.

4. The cleating in the lid, leaving air space, and space for dressing, and at the same time when the lid is down all the box edges in the top layer are gripped so as to hold all the boxes firmly.

5 The removable lid, secured and locked with a wire loop and button, which lid is also filled with Veneer.

RASPBERRIES BOOMING.

THIS Journal has often advised its readers not to be fickle minded, and discouraged with growing a fruit because of one or two years' failure in crop or prices. Many fruit growers were disheartened over apples, and dug out trees they had been nursing into bearing for years, to find in 1898 that Grade A1 apples were about the best crop they could have.

Now a similar thing is happening with raspberries. For several years the price has been depressed until 1898 there was little, if anything, left after paying expenses, and many large fields of bushes were rooted out. Now we find indications of a strong advance in the value of this fruit. Already canning factories, which last year paid 3 and 3½ cents for the crop are offering 4 cents; and no doubt will have to advance still more to secure their supplies.

One outlet for raspberries is to Great Britain in the form of pulp—which is put up without sugar or water, in tins weighing about ten pounds. At our St. Catharines meeting Mr. C. C. James spoke on the subject and gave a great deal of interesting information which he has since published in the form of a special bulletin, in which he shows that raspberry pulp is a regular article of commerce in Great Britain, which will pay the shipper fairly at £25 per ton; but will give excellent returns, when as sometimes happens it reaches £40 or £50 per ton. All this will be seen in our report for 1898, soon to be published. From a recent letter from Mr. Watson of the Imperial Institute to Mr. James, he says:

"I am keeping track of the raspberry pulp trade. I learn that the Australian crop has again been practically a failure. One broker states that they are asking £45 to £50 per ton, and others that the Australians will have none to export. It is still too early to attempt to foretell the course of events, as everything must depend upon the English and Dutch crops. Speaking guardedly, I should think that the prospect for fairly high prices is on the cards, and Canadian raspberry packers should watch the market I have not yet had any blueberries from you, but it may interest you to hear that a considerable lot of canned wild raspberries from New Brunswick shipped to a broker here turned out satisfactory and realized good prices.

LIKEWISE PEACHES AND PEARS.

"Peaches and pears are goods which Canadian packers should turn particular attention to. I hear constantly of an ever-growing demand, and even if Canada cannot offer the extra choice varieties which Californian firms, like the San Jose, have obtained such a market for, there is a good market for sound, well flavored fruit of good appearance, provided that the syrup is what s wanted and the standard is maintained.

"The new pack California fruit is now here, but if the damage now reported has really occurred in the Atlantic States, and the cold has destroyed the trees and next season's crop, dealers look to high prices next autumn and winter. Most of the eastern United States pack is consumed locally. It is much larger than the Pacific, and if here is a shortage, California will not have much for this market. If your information confirms the damage, it would be a favorable time for Canadian canned pears and peaches to obtain a footing in this market.

THE AMARYLLIS.

Part of a paper read before the Hamilton Horticultural Society.

FIG. 1598.—AMARYLLIS JOHNSONI.

I enclose photograph of pot of Amaryllis Johnsoni, grown by Mr. James Anderson, 323 Queen St. S., Hamilton. The specimen which has fifteen spikes of bloom with sixty flowers and buds, presents a gorgeous appearance and, as far as I can learn, far surpasses anything of the kind ever seen by any of our members. The flowers are carried over three feet above the soil. The original bulb is nine years old, and has been repotted twice, the last time being about two years ago, when the increasing growth burst the pot. A little manure water is given at the time of flowering, perfect rest and no water when the bulbs are dormant. Thirty-nine flowers were produced in 1898. The photograph, owing to position and light, does not do it justice. J. M. DICKSON, *Hamilton, Ont.*

THE Amaryllis belongs to the bulbous class of plants, and under that name is generally included, for commercial purposes at any rate, the numerous family of Hippeastrums, as well as the Vallota, and other species closely allied to the amaryllis proper, all of them belonging to the natural order of amaryllis.

The first record we have of the intro-

duction of amaryllis to European gardens gives the date as being early in the eighteenth century, about 1712, it being indigenous to the Cape of Good Hope, South Africa, where so many varieties of these beautiful plants have been introduced. These were herbaceous in their character, the foliage commencing to die down soon after the flowering season, followed by a period of rest, about which more will be said in the few remarks, I shall make on the culture of this easily grown, showy and attractive class of plants.

To secure the best results get some good sized bulbs, which we suppose are dormant, plant the bulbs in good rich loamy potting soil and not of too sandy nature; in well-drained pots, size of pot to be regulated by size of bulb. For a good average flowering bulb, a seven inch pot will be required. Plant so that a small portion of the bulb shows above the soil; water thoroughly once, and if the soil settles from watering fill up with soil again; water only when appearing dry at this stage, and water very seldom until root action has well started, when the plant will need more water; when in full growth it requires and will bear a great deal of water, especially if the drainage is perfect. The first intimation of top growth in most of the herbaceous varieties will be the appearance of the flower spike; about the same time the foliage will be seen starting into growth; the growth of both flower spike and foliage being very rapid, water, and possibly liquid manure, of a mild nature, may be given pretty freely now until the leaves show symptoms of decay, then water must be gradually withheld until the foliage has decayed almost entirely, when the pot, with the bulb in it, can be placed in a comparatively dry and warm position, say in a temperature of 40° or 45°. The bulbs can remain there until the following season, when they can be brought out and repotted if necessary; but if, as often happens, the bulb has commenced root action, do not repot it, but stir out some of the old soil from the top of the pot, and top dress, which in gardeners phraseology means filling up with a good rich compost of potting soil. This is preferable to repotting if growth has commenced, when the same treatment can be given as before recommended. One objectionable feature of the herbaceous class, from my point of view, is the appearance of the flower before the foliage has fully developed, which seems to me to detract from its beauty and value.

The evergreen varieties, which are generally classed under the name of Hippeastrums, have by constant hybridization with other Amaryllids become so blended and mixed that it is almost impossible to distinguish them except as evergreen varieties. The first known variety of this class was introduced from this Continent of North America in the 17th century, about the year 1658, some years before its near relative the Amaryllis was known to European floriculture. Many others were brought at more recent dates, chiefly from South America, the West Indies, and Africa, and are, as far as form and color of the flowers are concerned, very similar to the deciduous or herbaceous varieties. At the present time, there is an almost endless variety of both these classes of beautiful plants, secured largely by hybridization, although some having quite distinctive features are still introduced by plant collectors and travelers in newly opened up countries.

The evergreen varieties, like the herbaceous kinds, require their period of rest, but not of such a decided character, as only partial rest is required by the

evergreen varieties. The time to rest them can best be ascertained by watching when the plants have completed their growth, which will be some time after they are out of flower; then withhold water gradually, but never allow the plants to get sufficiently dry at any time to allow the foliage to droop. The appearance of the flower in these as well as in the herbaceous varieties, is, in most cases, the first sign of new and active growth, and water can be given more liberally; in fact, it is hardly possible to give too much water at this stage, providing the drainage is perfect and the plant healthy. Liquid manure of a mild nature, made from cow or sheep manure, will improve the quality and color of the flowers and foliage, if judiciously applied. The same remarks apply, even more closely, to the evergreen varieties than to the herbaceous. As regards repotting, it is certainly better not to repot if the plants are healthy and doing well, and this can be easily known by the condition of the foliage, which should look bright and glossy if they are thriving. It is better to assist them with weak manure water occasionally, than to repot. The evergreen varieties can be kept in the window or greenhouse continually, and very few varieties need a high temperature at any time; or they can be stood out of doors during the hot summer months to advantage where not exposed to the burning midday sun. It would be best to stand them in a saucer if possible, or on coal ashes. A good position for them is on the north or east side of a fence or building.

I cannot close my remarks on the Amaryllis without noticing the Vallota purpurea, a beautiful and easily grown ally of the Amaryllis; in fact it is often catalogued as Amaryllis purpurea, being probably better known as the Scarborough Lily. It takes that name, it is supposed, from the fact that so many fine specimens are seen in and around that fashionable seaside resort, on the N. E. coast of England. It is also a native of the Cape of Good Hope, having been brought from there about 1774. The Vallota requires similar treatment as the evergreen Amaryllis, but even more water, the plant in its native haunts being found near marshy places and is even more averse to repotting than the Amaryllis; it often grows and thrives in the same pot for several years. These plants can all be propagated from seed; an almost countless variety of hybrids, some of them very beautiful, have been introduced in that way. They can also be increased by offsets, the small bulbs which appear at the side of the old bulbs; these must not be detached from the old bulb until appearing to drop away, and can best be removed when repotting; care must be taken in separating, to try and do so with the small roots attached, but this is a slow method of increasing the plants. In commercial establishments these bulbs are often increased by dividing the old bulbs, and there is nothing in this method that cannot be successfully practised by an amateur. This must of course be done, when the bulbs are dormant, by dividing them lengthwise with a sharp knife so that if possible a small portion of the tip of the bulb, as well as the flat part of the base is left on each division, as the latter is the essential part of the bulb to produce roots. Each section so divided and can be potted into small pots, in soil composed of equal parts loam and sand, when they can be grown on into larger pots as required. By this method one large bulb can be made to produce ten or more plants, and is possibly the best means of increasing good varieties, as

one is certain of securing the same plant in every particular, which is not always the case with plants raised from seed. These plants as a rule do not vary as much in that respect as some other classes, or natural orders do. There are one or two hardy varieties of the Amaryllis, and as they have been grown successfully as such, in and around New York, I see no reason why they could not be grown even more successfully in this section, than where mentioned. I find I have extended my remarks on these beautiful plants, but cannot close without saying, that I am satisfied that anyone starting to grow the Amaryllis, will never regret doing so, as it is one of the most remunerative and easy plants to grow, and will by its handsome and gorgeously striped and marked flowers, amply repay any labour bestowed on its culture. I might name on or two of the best varieties, *Amaryllis johnsoni*, red with white stripe; *A. vittata*, white, striped red or purple; *A. formosissima* (Jacobean Lily), scarlet; *A. hybrida* (Empress of India), striped; *A. hybrida* (Thomas Speed), striped, both beautiful varieties; *A. pardinum*, cream, dotted crimson; *A robustii*, *A. graveana*, rich colored; *A equestre*, an old, but favorite variety; *Amaryllis* or *Vallota purpurea*, and other varieties.

Hamilton. W. HUNT.

HORTUS DEORUM.

SOME time ago I visited a friend whose husband had been a (moderate) invalid for years. He had spent his summers in beautifying his enclosed lawn of about an acre, and it was indeed a garden of the gods. His three summer-houses were inexpensive, but glorious with vines of various kinds. At the eastern end of one he stretched a woven wire, like fencing, and over this was trained the finest specimens of Canary Flower vine. This beautiful light green climber was literally covered with its flowers of a bright lemon color.

This member of the Nasturtium family is an annual of great beauty, but seldom seen in America, as hardy vines are preferable. At the south and west sides of this house were Roses and Clematis

The most charming of all was the broad and high house in the midst of the garden. A fine grape vine let its fruit down from the top, amid Bignonia and Ivy and Moon Flower. Almost the entire garden fence was adorned by some vine or rose.

The Alleghany Vine (or Wood Fringe) and Adlumia make an elegant screen, but are not hardy here. The Wood Fringe is not perennial, but biennial; not climbing the first year. He had mastered them, however, raising them in tubs the first season.

Pilogine was used entirely on one balcony. The roots, somewhat tuberous, can be kept dormant through the winter—buried in sand in some place free from frost. Started in pots in March or April, and fed with a liberal supply of manure water, they grow very luxuriantly, and the countless flowers fill the air with musky fragrance.

One vine pleased the children greatly, and this was the Dish-Cloth Gourd; suspended by a cross stick on a pole, it was striking.

The American Ivy *(Ampelopsis quinquefolia)* was found in various places; on pillars, walls and fences. But the Bittersweet, climbing a Poplar tree,

coaxing along the Trumpet Flower as it clambered, was altogether unique.

I was informed that the American Ivy was unfit for a tree garniture, its embrace being too tenacious—like our evils. Therefore an English bishop once wrote :

" The Ivy, fairest plant to seize,
And promptest on the neighb'ring trees,
O'er bole and branch, with leaves that shine
All glossy, bright, tenacious twine ;
And the else naked woodland scene
Clothe with a raiment fresh and green.
Fair is that Ivy twine to see !
But as ye love the goodly tree,
O rend away the clasping wreath,
'Twill pay the kind support with death ;
Ah, that beneath such semblance fair.
Should lurk, conceal'd, such deadly snare !"

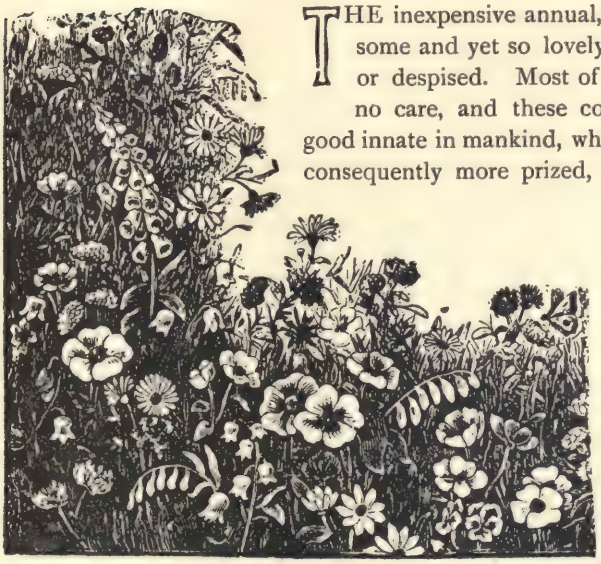
The shrubbery of this garden was old-fashioned, but arranged with finest taste. In front of the large bay window, Hollyhocks and Dahlias flourished in a bed six feet wide. I had never seen Fuchsias at their best, and their nook under three Birches grown near together was a charming sight.

Roses in borders and in beds, and annuals of every kind, I thought, greeted us along the walks. I greatly wondered how he could achieve so much beauty ; but his small greenhouse—where his Hoyas clambered—which held about three hundred plants, solved the problem, and I thought how infinitely greater the satisfaction of this garden than the delusive vanities of the outside world.

M. Agatha Hoskins.

Newport, Vt.

ANNUALS.



THE inexpensive annual, like children, so troublesome and yet so lovely, are not to be neglected or despised. Most of them grow with little or no care, and these correspond to the natural good innate in mankind, while others, far lovelier and consequently more prized, require minute attention. These, like the higher qualities of the soul, are often considered too much trouble, and are left to the painstaking few. The garden teaches us "it is more blessed to give than to receive." We grow to love the plants we care for, as we learn to love children. The delicate flowers, to my mind, are always preferable. The Swan River Daisy is a charming flower, and requires little care. The Schizanthus, is another in bloom a long time, and is especially delicate and beautiful for cut flowers. The Corn-flower, so beloved by Germans, is little or no trouble, and worthy a place ; given a rich soil it will attain

18 inches in height. I never transplant them, or thin, to more than three inches. Whitlavia is another favorite ; it should be given a rather shady location ; this is a treasure, but not so great as the Schizanthus which, waving in the breeze, always reminds me of flitting butterflies. Salpiglossis, Myosotis, Alyssum, etc., are half hardy and self-sowing. I like a wild garden of all these flowers, with a few added, such as Gaillardia picta, or mixed Eschscholtzia, Lobelia, Gypsophila, Gilia, Nigella, Salvias and a few Shirley Poppies and Heliotrope A mixture of our own is more expensive but the results are one hundred per cent. better. The coarse flowers are out of place here; I like them by themselves.

The Antirrhinum is perfectly hardy in Ohio and the southern states, but not here. Its richness and profuse bloom make it attractive. The Larkspur also is an annual treasure, snperior to the perennial varieties. Close to a tight board fence they thrive with me, and, if a trifle too dry, I use a mulch or flat stones about them, and give them a pail of water at even-tide.

A yard wire netting, of five or six yards, should be in the garden, for Morning Glories, Sweet Peas, Perennial Peas, New Climbing Nasturtiums, Japan Hops, and roses like Climbing Pearl, and Meteor, Cyprus Vine, etc.

Seeds purchased of a reliable seedsman will all grow if properly sown, and one dollar's worth will quite do for two years, and give more pleasure than many spent on more expensive flowers.

I have found more fraud in "posey-seed" than in the garden, and as much depends on the reliability of a seedsman as on any other investment bearing the proper credentials. In this business a good name is better than precious ointment. M. A. HOSKINS.

THE NIGHT SCENTED STOCK.

Mathiola Bicornis, the Night Scented Stock, is a flower not so well known and not so often grown as it deserves. The generic name of the stocks, *Mathiola*, is after Mathioli, an Italian physician of the sixteenth century, and the specific name, *bicornis*, means two-horned, the allusion being to the two flower buds placed like horns at the ends of the stems. The flowers succeed each other, adding to the length of the pod, which is often seven or eight inches and looks like an ordinary stem, but being opened, will be found to contain two rows of seed. The Night Scented Stock is a half-hardy annual, growing about a foot high, bushy and with narrow leaves and single rosy-lilac flowers. The flowers are pretty enough but open only at night or on a cloudy day. In the light they are closed and the plant has a ragged, unattractive appearance, and should occupy a retired position. But though not beautiful, it is one of the flowers—

> "That keep
> Their odour to themselves all day;
> But when the sunlight dies away,
> Let the delicious secret out
> To every breeze that roams about."

It takes a good deal of heat to develop the odour and in a cool summer it may be very little noticed. But on a warm summer night it is perceptible at a considerable distance, and from the passers-by are heard frequent exclamations of wonder and delight. It is one of the most agreeable of flower perfumes, not strong, but sweet and satisfying, and when one has once enjoyed it the experience will often be re-called with pleasure. The amateur who grows the Night Stock, starting the seeds with bottom heat, if possible, and giving the plants good culture, will find that while there are many more beautiful flowering plants, there is none that gives a more exquisite odor when the conditions are favorable to its full development.

CHAS. Y. MOORE.

Brampton, Ont.

The Canadian Horticulturist

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Notes and Comments.

STOCK SOLUTIONS FOR MAKING BORDEAUX MIXTURE.—A convenient method is to dissolve 40 pounds copper sulphate in 40 gallons of water in one barrel, and 40 pounds of lime in 40 gallons of water in another. Then each gallon means a pound of the substance wanted. When wanted for use each solution should be diluted separately before pouring them together.

ORCHARD FUMIGATION is the subject of Bull. 122, Univ. of Cal., Berkeley, Cal.; and it would appear that more effective destruction of scale insects can be accomplished by fumigation than by spraying; even orchard trees can be treated by using bell, hoop and box tents, made of light duck, oiled, sized, and painted to make it gas tight. Cyanide of potassium gas is used for fumigation.

PEACH CURL. Cornell Bull. 164, advises the following treatment to prevent this evil.

1. Spray thoroughly with strong Bordeaux mixture just previous to the swelling of the buds, late in March, or early in April.

2. Spray again with weaker Bordeaux as soon as the petals of the flowers have fallen.

3. Spray again with weak Bordeaux when the leaves are just full grown, or at just about the time that the spores of the fungus are developing.

THE PEACH CROP is said to be so completely cut off in Georgia, that there will be no peaches to ship from that state this season. The prospect is fair in the Niagara District, a small proportion only having been destroyed. This should result in better times this season in the Niagara peninsula.

CLARKES' PATENT VENTILATED CAR. We have a line from Mr. John Clarke, of Orangeville, inventor of the ventilated car, referred to in page 101, who says it is a mistake to say that there are fifty of his cars already in use. In fact there is only one on the G. T. R., and one on the C. P. R., and of the two, the former is the best fitted.

THE CLYDE STRAWBERRY. Ohio Bulletin 98, speaks well of this strawberry, as follows: "The favorable report given in 1897 concerning this variety does not seem to need modification. The plants are healthy and uncommonly prolific. The berries are large enough and are sufficiently firm for near market. Although rather soft it was noted that fewer berries of this variety spoiled on the plants than of many others, which appeared to be firmer. The color is not quite as dark as desirable, but there can be no doubt that it will sell at a fair price in almost any market, while the berries are of fair size but not large enough to be ranked as fancy. It appears to be in nearly every respect a variety which is just suited to the wants of the ordinary commercial grower. It is probably the most prolific perfect-flowering variety in existence. While it is a vigorous grower and the plants have a tendency to mat too thickly in the row the berries do not seem to be small in consequence. It holds out well towards the end of the season; much better, in fact, than many other varieties which are less prolific. While not of the highest quality it can be recommended for home use, and growers for market need not hesitate to plant largely of it.

SEEDLING OF GRAVENSTEIN. Mr. Burbank of California has recently brought out a new apple in a seedling of the Gravenstein, but six weeks later, and therefore a winter apple. It is said to possess a very excellent flavor.

HON. SENATOR FERGUSON who was appointed President of the P.E.I.F.G.A. for the current year has, owing to enforced absence from his province on account of senatorial duties, been reluctantly obliged to resign and H. A. Stewart, Esq., the vice president, a most enthusiastic advanced orchardist has succeeded to his place.

PEACH PROSPECTS IN ESSEX. Mr. W. W. Hilborn, of Leamington writes:

We have had the most disastrous winter ever known in this locality. Long continued cold with no snow on the ground had destroyed the roots of I think considerably more than half of the peach trees in this country. Nearly all of the large trees are killed especially where they have been well cared for and the ground kept clean around them. Some of the finest orchards five to eight years old will all have to come out. I have been examining the experimental trees and find they are not so badly killed, had crimson clover among them and hope most of them will survive, cannot tell at present to what extent the trees are killed. The tops are all right on most sorts with plenty of injured blossom buds for a good crop of peaches. The tops of the trees looked so nice that no one thought of looking at the roots until Saturday last, it was discovered that the roots were killed. Many of the fruit men are about discouraged and do not intend to plant as largely again. One man living just opposite me has 2100 trees planted six or seven years and bore their first crop last season, all are killed. Old trees have suffered most, seedlings more than budded stock.

FUMIGATION OF NURSERY STOCK. In order to carry out the provisions of the act for preventing the spread of San Jose scale, the department of agriculture has just issued the following regulations for the fumigation of nursery stock:

1. Fumigation must be carried on in a box, room, compartment, or house suitable for the purpose, which must be air-tight and capable of rapid ventilation. The owner or proprietor will notify the Minister as soon as preparation for fumigation is complete. The Minister will thereupon order an inspection of the fumigation appliances. No fumigation under the Act is to be carried on until such inspection has been made and a satisfactory report sent to the Minister.

2. The Inspector, after examining and measuring the box or house, or other compartment in which fumigation is to be carried on, will prescribe the amounts of material to be used for every fumigation, and the instructions as to the same must be carefully followed out. The Inspector may, if thought advisable, supply the material for each fumigation in weighed packages.

3. The fumigation house (which shall include all apparatus or appliances used in the fumigation, such as generators, etc.) is to be subject to the orders of the Minister on the recommendation of the Inspector. Subject to the approval of the Inspector the fumigation house may be on other lots than those on which the nursery stock are growing.

4. The fumigation is to be by hydrocyanic acid gas produced according to the instructions of the Inspector, and from such formulas as he prescribes for the purpose.

5. The fumigation is to be continued for a period of not less than forty-five minutes. After the expiration of this time or longer, and when fumigation is complete, the house is to be thoroughly ventilated for fifteen minutes at least.

TUBEROUS BEGONIAS. — Mr. Hunt writes: "I regret there is an omission of a small sentence or two in the second paragraph of my paper on 'Tuberous Begonias,' second column, page 154, commencing 'The glass can be kept close, etc., etc.': — the full paragraph should read as follows :—'The glass can be kept close at first, but when the seeds start into growth, *air must be given, as at no period of growth*, especially at this stage, will the tuberous begonia thrive in a close humid atmosphere."

CHARLES BALTET, of Troyes, France, is a celebrated author of horticultural books, widely known and respected in Europe, founder of the Pomological Society, of France, and chief exhibitor at most of the great expositions. hence it is not surprising that he is to be chief of the Horticultural Department of the Paris Exposition of 1900. We have just received a pamphlet, giving a biographical sketch of M. Baltet, written by Jean Guicherd, Professor of Agriculture at Aube.

THE COLD WEATHER of last February was too severe for tender trees, especially where the ground was not protected by either snow or some cover crop. It is reported that ninety per cent of the peach trees are winter killed in Essex, and whole orchards in Michigan are wiped out of existence.

FUMIGATION is the order of the day for nurserymen, who find it an expensive and troublesome undertaking. It seems quite unnecessary too in cases where never a single scale has been discovered.

We believe the law will prove in many instances a dead letter, for the inspector comes along only to inspect the fumigator and does not remain to see that the work is done.

BLACKBERRY CULTURE.—The article on this subject, p. 127, was written by Mr. Chas. McColl, and read at a meeting of the Simcoe Horticultural Society.

AN ENJOYABLE LECTURE on Our Canadian Homes was given before the Brantford Horticultural Society, by Mr. F. H Race, of Mitchell, Ont., one of our directors. The Brantford Courier says: "Mr. Race is a very pleasing speaker, unaffected, but most effective in his manner from start to finish."

DR. FLETCHER and Prof. Macoun both report having had a most enjoyable lecture trip among our Societies.

ORCHARD cultivation is gradually reaching a new era. Better pruning, spraying, cultivating, thinning, etc., seem absolutely essential to success; but this takes heaps of good honest labor. Consequently, the successful fruit grower must make a business of his fruit, and not attempt to accomplish too many things at once.

Question Drawer.

The following questions 1073 to 1077 are answered by Prof. H. L. Hutt, Horticulturist, O. A. C, Guelph.

Sweet Peas.

1073. SIR,—What depth should sweet peas be planted?

Make a furrow in which seed is planted from three to four inches deep, and about six inches wide at the bottom. Scatter seed evenly, and cover with about two inches of fine soil. The rest of the soil should be worked in gradually, as the plants grow, the furrow being filled by the time the plants are six inches above the surface.

Primrose in House.

1074. SIR,—How should a house primrose be treated?

To have good winter blooming primroses, new plants should be started every spring in a little seed box. When they are large enough to transplant they should be potted singly into small pots from two to three inches in diameter. When the roots have filled the small pots they should be repotted into four-inch pots, and from these again into five or six-inch pots, in which they are allowed to bloom. Care should be taken to have the crown of the plant a little higher than the soil of the pot, to prevent water lodging in and rotting it. Use well prepared potting soil, keep in a moderate temperature, and avoid excessive watering.

Washing House Plants.

1075. SIR,—Should the leaves of a plant be washed with a cloth?

This is desirable with plants having large smooth leaves like the India Rubber and many of the palms; other plants may be washed by showering them.

Treatment of Lantanas.

1076. SIR,—How should a three or four-year-old lantana be treated?

The lantana is a shrubby little plant, which after a long period of blooming should be rested by witholding water any more than may be necessary to keep them alive. When beginning to make new growth after resting, they should be repotted firmly into good rich soil, and the top should be severely pruned back. More water will be required as the plants begin to grow freely. Syringe the foliage frequently to keep the plants free from the red spider.

Campanulas.

1077. SIR,—How long will a campanula last?

Some of the campanulas are annuals lasting but one year; some are biennials, lasting two years, and generally blooming the second season; and others are perennials, lasting for several years.

Bad Ocean Transportation.

1078. SIR,—In October last I sent four barrels of Northern Spy, from here to Hamburg, Germany, and arrived in Hamburg December 28th. The apples were well packed but arrived in a very bad condition; in the best barrel only half were fit to use, and the worst barrel had only forty good apples. I had to pay $2 50 charges for each barrel in advance. Now I would like to know how this could be remedied and who is responsible for this loss, as no doubt the time was exceptionably long, being two months and a half. The fruit was sent only as a present to a party. Is there any other company beside the Hamburg American Packet Company, or was it the fault of the G. T. R. The railway agent here told me the apples would go in cold storage.

JUSTUS ROEDLER, *Milton.*

Your apples could not have been forwarded from Montreal by a direct line to Hamburg, or they would not have been so long en route. No doubt they went via London, and were delayed waiting transhipment. You should get a definite bill of lading specifying just how the fruit is to be forwarded, or by what line. Unless you have some agent in Montreal to see that your goods are loaded in cold storage, or else have it in your railway shipping receipt, we do not see how you can expect them to be carried in that way.

Cereus and Phyllocactus.

1079. SIR,—The article on The Nright Blooming Cacti, in the March number of the HORTICULTURIST is rather confusing. Cuts of two plants are given—Cereus grandiflorus and Phylocactus latifrous. I have both plants and they were in bloom last summer.

Florists apply grandiflorus to that individual of a species having the best flower. Hence the use of the term indicates that there are other members of the species. The one I have, that bloomed, is quite different from the cut given. It is square, each side being ¾ of an inch, and quite rounded, being without spines. The cut represents a much smaller plant with concave sides, and having prominent spines. I obtained mine from a person skilled in cacti, and he assured me that it was the real Cereus grandiflorus. I also have the smaller plant, the one represented in the cut as the Cereus grandiflorus. I should like to know which is the real and which is the spurious Cereus grandiflora or grandiflorus.

The flowers of the Cereus are perfect, having both calyx and corolla. Those of Cacti are imperfect, having no corolla, but a colored calyx. Cacti remain in bloom during a number of days. The flowers of the Cereus open in the evening and close before morning. I have not much knowledge of Cacti, but the above is the result of my observations. According to these, combined with some knowledge of botany and an acquaintance with the practices of florists, I cannot understand why, when two plants having perfect flowers and both blooming in the night only, one should be called a Cereus and the other a Cactus.

WM. GORSLINE, *Durham.*

The Cacti are a very numerous family, a large part of them natives of Mexico. They are also found in California, Texas, Nevada, and South America; as many as 1000 varieties having been discovered. They are subdivided into numerous genera, as (1) *Cereus*, of which there are about 200 species, among them Cereus giganteus, which in Mexico has reached the height of 50 feet, and Cereus grandiflorus, of which our illustration on page 111 shows a two year plant, grown in a six inch pot from a six inch cutting, and this is the true Night blooming Cereus. (2) *Echinocactus*, the hedge hog cactus, containing about 200 species; (3) *Echinocereus;* (4) *Echinopsis;* (5) *Epiphyllum;* (6) *Mamillaria*, a numerous and popular family; (7) *Pilocereus*, to which belongs that curiosity Pilocereus senilis, the "Old Man Cactus"; (8) *Phyllocactus*, of which P. latifrons, figured on page 111, is called the giant of its family, growing 8 or 10 feet high, with stout flattened stems 4 or 5 inches broad. The flowers appear at night, giving rise to the misnomer, "Night blooming Cereus," which is mentioned above. This genus is of the easiest culture; (9) *Opuntiae*, of which there are 150 species in cultivation.

We have given a list of the principal families of Cacti, a class of plants quite in favor of late with some amateur florists, and which go far to make up for their ugly spines by their beautiful bloom.

Transplanting Asparagus.

1080. SIR,—Last year I planted a quantity of asparagus seed, sufficient for a bed of about one-eighth acre, intending to transplant this spring. The seed came up very well and looked strong and healthy last fall. During last season I prepared the bed into which I intend to transplant by ploughing up the sod and planting in roots, keeping well hoed and free from weeds, and when crop was taken out I manured very heavily and ploughed again last fall.

I have since heard that the asparagus plants will do better to remain for another year before transplanting. Will you kindly advise me as to this. The soil is a rich clay loam, well drained naturally.

Yours very truly,

SUBSCRIBER.

Strong one year old plants are best but they may be transplanted at two years old, if more convenient.

The roots should be set about six inches below the surface of the soil; some advise setting deeper, but of course that would mean later starting in the spring.

One Hundred Apple Trees.

1081. SIR,—In planting out an orchard of 100 apple trees, what kinds would you recommend, and how many of each, so as to give the family sufficient for use during summer and fall and the balance winter fruit, principally for shipment.

E. J. P., *Kintore.*

The following would make a very good list for family use, with a larger number of those kinds suitable for export; Early Harvest 1, Porter 1, Sweet Bough 1, Red Astracan 2, Duchess 10, Alexander 5, Fall Pippin, Gravenstein 10, Blenheim Orange 10, Wealthy 20, King 5, Fameuse 2, Greening 2, Ontario 20, Spy 10.

Spys on Tolman Sweet.

1082. SIR,—In the case of Spys or other late bearing trees of good quality would they bear any earlier by being top-grafted on Talman Sweet stems.

E. J. P.

We know of no instance of testing the Spy on Talman sweet. Some have claimed to have made the King apple more productive by top-grafting it on Talman Sweet.

Mixed Planting.

1083. SIR,—Would it be advisable to plant plum, pear, cherry, peaches, or early bearing apples among the regular rows of the apple orchard, to be cut out when their room would be needed by the apple trees?

E. J. PEARSON, *Kintore, Ont.*

We would not advise this except in the case of peaches and possibly dwarf pears; plums, cherries and dwarf apples are longer lived, and would just reach their best days when they would have to be sacrificed.

We think, unless land is very limited, it is best to plant each fruit separate.

Questions (1084 to 1090) answered by Mr. W. Hunt gardener, Hamilton.

Ferns.

1084. SIR,—What is the best time and way of increasing Adiantum ferns, and the best compost to pot them in.

Adiantum ferns can be increased by dividing old plants in the spring, just as the young fronds are commencing to unfold from near the roots of the plant. Pot each division into small pots at first, repot into larger as required. A good compost for them can be made by mixing two parts of well rotted fibry loam, with one part each of leaf mould, (or peat) and sand, use plenty of drainage, and keep the plants in a shaded position, during the summer, water well at the roots, but do not sprinkle or syringe very often. Adiantum can be raised from seed sown in a box or pan filled with fine peat and leaf soil, with a little sand mixed with them, do not cover the seed at all, water very carefully; or a few well ripened frouds may be laid on a moss covered stone, kept in a well shaded position, and watered carefully; the latter is oftentimes the most successful method. Seedling Adiantums make better plants than those from divisions, but require great care at first.

Palms.

1085. SIR,—What is the best time to shift palms, and the best soil to pot them in.

Referred to paper on Palm Culture in February issue of the C. HORTICULTURIST.

Clematis.

1086. SIR,—What is the best time to plant clematis, spring or fall? Should clematis be pruned, and if so, at what time?

Plant as early as possible in spring. The Clematis, as a rule, requires very little pruning; cutting out the dead portions, or shortening back the growth to strong vigorous buds, is all that is generally necessary. If the growth is too dense, thin out the weaker growth altogether as required. The best time to do this is in spring, just as the buds are showing growth.

Budding Roses.

1087. SIR,—What would you advise, budded roses, or roses on their own roots, for the amateur.

Roses on their own roots are decidedly the best, whether Hybrid Perpetuals or the more tender classes of Tea and Noisette roses.

Hardy roses when budded or grafted, require to be heavily mulched with manure, or sufficient soil thrown around them to cover the junction of the graft or bud with the stock so as to protect them in severe weather; they are also very liable to canker at the point where grafted. Another objection to budded or grafted stock is the worthless growth from below the graft, which has to be kept constantly cut off, or it would soon smother and eventually kill the rest of the plant. Tea and Noisette roses are also best on their own roots, with possibly a few exceptions, one of which is the well known and ever blooming white tea rose, Niphetos, which in a greenhouse gives the best results when budded or grafted on a strong growing, climbing rose, such as Lamarque or Cloth of Gold.

Hyacinths and Narcissi.

1088. SIR,—Will hyacinths and Roman Narcissi flower as early potted in the soil as in water?

There would be very little difference in time of flowering these bulbs, whether grown in soil or water; condition of bulbs and temperature affect both methods at different seasons very materially.

Cyclamen.

1089. SIR,—What is the best soil in which to grow Cyclamen, and how should they be treated in the summer?

The best soil for Cyclamens is light, fibrous loam, enriched with dry cow manure; use plenty of drainage in the pots. For summer treatment keep the plants growing for a short time after flowering, then withhold water gradually, giving sufficient at intervals to keep the plants fairly moist, without drying off altogether. The plants should be kept as cool as possible. A cold frame and sash in a shaded position out of doors, is a good place for them. Seedling Cyclamens should be kept growing steadily the first summer.

Azaleas.

1090. SIR,—How should these be treated after flowering?

Azaleas should be repotted, if necessary, immediately after flowering, and kept in a temperature of about 65 degrees to complete their growth; remove

to a cool, partially shaded position out of doors during the hot summer months. The north side of a building or fence is a good position. The pots may be either plunged in, or stood on a bed of coal ashes. Water and syringe frequently, never allowing the roots to be quite dry. A few tobacco stems thrown around outside each pot will materially assist in keeping down red spider and thrip, the two insect pests to be dreaded by the Azalea grower most of all.

Roses for Amateurs.

1091. SIR,—Are budded or own root roses best for amateurs?

Answered by Webster Bros, Hamilton.

If by an amateur is meant one who can scarcely tell a rose from a cabbage, well decidedly, roses that can produce nothing but flowers of the variety he has purchased, or own root roses, are the best. However, we find the majority of the amateur rose growers are well versed in varieties, etc., and to this question it would not do to say plant own root root roses, because you cannot tell the difference between the general Jacqueminot foliage and that of the Manetti, or that of the briar on which it is budded. Budded roses will give a quantity and quality of flowers, the first of the season after planting, that cannot be had from own root plants. Budded roses will not stand late planting as well as the own root stock. Plant them as soon as the ground can be nicely worked and set the union of the rose and the stock rose three to five inches below the surface, to give the good rose a chance of ultimately establishing itself on its own roots. The Manetti rose has seven leaflets, while most of the H. P. roses have five. The briar has very light colored wood and small leaflets, which are very distinct. Neither of these stock roses should be mistaken for a worthy variety, by any one who is sufficiently interested in his roses to notice a difference of wood and foliage.

Public Meeting of Societies.

1092. SIR,—We find it a little hard to get the members to attend the public meetings of our Society. Could you suggest any way in which we could make them more interesting? M. TULLY,
Sec. Midland Hort. Soc'y.

We think it a mistake to depend too much upon one big meeting for the life of a horticultural Society. Frequent smaller meetings, of a somewhat social character, will accomplish more, and need cost little trouble or expense.

Some of our Societies have monthly meetings—say, the 1st Monday evening in each month during the winter and early summer. These may be held in a small hall, or, on invitation, in houses; and in the proper seasons, a fair display of cut flowers or pot plants may be made on the dining-room table. These will form a centre for conversation until the time comes for reading a paper by a member of the Society, or a lecture by some gardener, which should be followed by questions or open discussion.

A little music will enliven the occasion.

The plant distribution in the spring should always take place in a public hall, at the close of a programme of music and addresses. Some call out the names of the members, who come forward and receive their basket of plants, and such a public gift night greatly helps the membership.

Ants.

1093. SIR,—I am at a loss to know what to do to destroy the ants that infest my plum orchard. They are building mounds all over, and a favorite place is around the

trees. Last year they destroyed some of the fruit.

J. E. ANDERSON, *Port Dover.*

Ants are not usually counted injurious to fruit trees. They often climb the plum trees after the wax secretions, and cherry trees after the honey dew deposited by the aphidæ; indeed they sometimes extract it from the aphis itself, which are therefore often named the ants' cows. However, our correspondent can easily rid his orchard of the ants, by dusting air-slaked lime, freely about and over the hills and other places infested. This should be done in warm dry weather.

Carbolic acid, diluted 10 or 12 times in water and sprinkled about, is an excellent destroyer.

FRUIT PULP. — Mr. W. Boulter, of Picton, member of the Fruit Pulp Committee, writes: — "I received a letter from Messrs. Anderson & Coltman, acknowledging receipt of our small consignment of raspberry pulp last fall, saying, '*Quality satisfactory; color good*, and *flavor good*,' only criticism was it was *too sweet.* As fruit is about 6d. a pound and sugar 1½d., the greater the quantity of sugar it will absorb the better for the jam maker. The pulp sent over was simply pure fruit, and it sold at about 36 shillings per dozen of 7 pound cans; but with a large crop it might drop to 15/ or 20/.

YE NARCISSUS OR DAFFODYL, HYS HISTORIE AND CULTURE.—Peter Barr & Son, Covent Garden, England. Through courtesy of Mr. Peter Barr, now visiting this continent, we are in receipt of a set of the magnificent catalogues, issued by this firm, and also of a pamphlet entitled as above, which forms a most interesting monograph on this flower. Speaking of the culture of the daffodil, he says:

"Even a clump or two of the common old double yellow kind in a cottage garden brightens up all around it; and planting bold beds or masses of these bulbs along the margins of woods, or even in the grass of lawns or in the home meadows, is a means of adding beauty to natural vegetation of such localities, for, as some one has well said, a group of garden daffodils on the young grass is a "sunshine in a shady place." When planted in quantity, one of the results gained is a plentiful supply of flowers for cutting, and of all spring blossoms these are the best for indoor decorations of vase or pitcher."

L'ART DE GREFFER, par Charles Ballet Horticulteur a Troyes, France.

This is the most complete work on the art of grafting we have ever seen, and well deserves to be translated for public benefit. In the first place he treats of the operation itself showing the various methods; then he treats of each individual tree, shrub or plant, and points out the method best adapted to it.

Traite de la Culture Fruitiere, Commerciale et Bourgeoise, par Charles Ballet Horticulteur at Troyes, France.

This is a very complete work on fruit culture in France, and treats in a very complete manner, with the varieties and methods of culture, adopted in that country. Much however is not adapted to our country, as for example, the training on walls of peaches and pears, and the transport of fruit in panniers.

Open Letters.

Apple Shipping.

SIR,—I notice in your valuable journal for March, that at a meeting of the Niagara District Fruit men, the subject of ventilated cars for shipping tender fruit in summer, was taken up and handled very ably, but to my mind there was a matter omitted of far more importance viz., winter shipping of apples to Europe. Now it is a fact that there has been very heavy losses this winter caused by apples being frozen on the way to the shipping ports and lying around waiting for vessels to arrive, and other causes. I have a circular from Wcodall & Co., Liverpool, stating that apples in some cases turned out frozen, out of the bottom of the vessels, even after the long voyage and in the warm vessel.

Apples, when frosted and put into the vessel in that state, will turn wet when they thaw out and will commence to rot at once. I just have returns for a car of Spys from Liverpool, $1.13 a barrel that cost me in the orchard last fall $1.50 for the fruit. I think this was the best car I ever shipped and would have made money had it arrived in good order. We want heated cars the same as those used on the C. P. R. I understood they have a coal oil lamp that is sufficient to keep the frost out of a good refrigerator car, also there should be a large shed at Portland and other points of shipping, into which cars could be run in till they are ready to be unloaded. I think that if this matter was taken up and remedied, we would not have so many barrels of slacks and wets and worthless rotten apples exported.

E. LEONARD & SONS, *Cobourg.*

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stronger Solutions Paris Green Advised.

SIR,—According to my experience the present formula for paris green for the distruction of eating insect pests is not strong enough to kill anything.

For Gooseberry worm last year I went by the formula 4 oz. of paris green to a coal oil barrel of Bordeaux mixture. This had no effect and I doubled the dose 8 oz, and this only just succeeded. I then sprayed potatoes 4 oz. with milk of lime in the mixture and found it of no use. To ascertain what we had been using by the old teaspoon measure, I filled a barrel and to every pail of the mixture —(milk of lime and water)—I put a teaspoonfull of paris green this was 14 oz. to a barrel 40 gals.

A gentleman living near had his orchard overrun last spring with the tent caterpillar, upon my advice he got a spray pump and put on the orthodox 4 oz. and this did not delay their operations of stripping his orchard in the least.

I notice in reports spraying for codling moths is not always successful, nor in my opinion will it ever be with 4 oz. of paris green to 50 or 40 gals. of water. Still I would counsel every one using Paris green to use milk of lime, as this not only protects the foliage from the effects of the poison and fixes it to the leaf but actually nourishes the leaf. This latter seems questionable but my experience so far seems to justify this conclusion, and this contention supported by other investigators, that the leaf should feed on the lime by absorbtion does not seem improbable when we remember that many plants take nitrogen from the air. Let this be as it may I am satisfied that the leaves of bushes that are kept coated all summer with lime are of more than normal thickness and size and retain their greenness till destroyed by frost.

Another point; I am satisfied from my own experience and from the experience of others, and the lecture given here last winter before the Farmer's Institute by Alex. McNeil Esq., still further fortifies the opinion, that gooseberry mildew is not affected by Bordeaux after the spores once get hold on either leaf or fruit. Our vantage time is before the leaf comes out, I gave mine a good drenching last fall, not after the leaves had fallen but after they were no longer needful to the bush; this I did with pure blue stone water 2 lbs to 40 gals., but for the future I shall add lime even before the leaves come out, as it fixes the blue stone to the stems for weeks.

STANLEY SPILLET, *Nantyre.*

Manuring.

SIR,—Your correspondent writing about Potash seems to have entirely misunderstood its application to plant life. As an alkali and base it is undoubtedly important in flesh building both in plants and animals, and although some eminent agriculturists have intimated that magnesia and soda can to some extent take its place, yet they have never for a moment suggested that we can get large crops of anything without potash in plentiful supply. There is, however, a great deal of potash in Canadian as in most other soils, in fact it is usually in much better supply than lime alkaline base. It is very often locked up in unyielding forms in the earth, but is readily liberated by the free caustic lime of the tetra-basic phosphates. The use of mono-calcic (superphosphates) phosphates, or even the di-calcic or tri-calcic (bone) phosphates will not effect the unlocking of the potash because they have no further base of free lime as the tetra-basic phosphates carry. This is one of the many reasons why the tetra-basic phosphates are being recommended by the highest authorities as preferable to superphosphates and bone.

In the light of the most recent researches we are again emphasizing the teaching of Liebig that the acids need more careful attention

than the bases and more particularly phosphoric acid. It is undoubtedly in comparatively poor supply in most soils and as it is carried off in the ripening of grains, roots, fruits and animals, and in the bone it does not get returned to such an extent as potash. Also what the soil does contain is usually locked up harder than the potash and is not so easily liberated. I do not for a moment wish to be understood as desiring to discourage the application of potash as kainit because I think it is wise to supply sufficient available material to meet the possible requirements of the largest conceivable crops, but I am within the line of latest and most extensive research and in accord with the best authorities in saying that, *in particular*, phosphoric acid is the most important of the inorganic elements which we have to provide return of in a commercial form. In the matter of the fertility of the seed phosphoric-acid is by far the most important substance, in fact in most seeds potash is but little in evidence in comparison. It is the bulky parts of the plant and not the reproducing parts which abounds in potash. Fruit growers have not been very careless in the matter of supplying more potash to their soils, but they have, not been supplying phosphoric-acid as they should. I understand that the reason for this has been that they have given too much heed to the teaching, that as potash enters so much with the composition of flesh in fruit that supplying lots of it would work the oracle. Also they are in the position of having had their *fingers burned* by the use of vitriolized superphosphates. As they want strength, firmness, ripening and reproducing powers of the best in their orchards they must supply *in particular* an abundance of phosphoric-acid but they must stipulate that the phosphate is free from sulphuric acid (vitriol) and available to their plants under proper circumstances of application. It is all the better if it is in a tetrabasic form and that the bases be lime, magnesia and iron.

T. C. WALLACE.

Adaptation of Varieties.

SIR,—I would like much to see an article on the adaption of varieties of apples to localities, the Newton Pippin is grown to perfection only in an area of a few miles up the Hudson, around the mountains of Virginia, and one or two other Southern States, under the name of Albermarle Pippin, this worthless, as grown in Nova Scotia, I have tried cuttings sent from Mr. Downing, but never saw even a blossom, the tree too for my locality, nor does it succeed in any part of Canada. The Gravenstein, as grown in Nova Scotia, to for as my experience goes, is not excelled anywhere, with you I think it is drier, ripens earlier, and is a short keeper. Now that is our *one* kind in which *alone* we excel, we judge few of our fruit growers have ever seen a Ribston Pippin such as I got 10 barrels of once from Grimsby, as juicy and as rich and as fragrant as a pine apple, and *going* in October. For the Famause you must go to Montreal. The best Wagener I ever saw, *beating Ontario*, came from C. W. Gillespie's orchard, Grand Rapids, Michigan. Where does the Swaar excel? We can never get it from Ontario, nor Grimes, nor Swazie Pomme Grise, or along other choice kinds. Shippers sre too apt to send too many of R. I. Greening, Mann, Ben Davis, and a lot of rubbish that no one wants, if he can get others.

At a meeting of our N. S. fruit growers, a few weeks since, I found as much uncertainity as ever, as to what kinds of apples to grow for profit, and the largest buyer and dealer at Wolfville, that has become wealthy through his apple shipment, advised a friend of mine to plant this coming spring, in a lot of 500 trees, not less than 200 Ben Davies.

I do not believe the English people will remain fools forever, but that they will gradually learn what are useful varieties, for the table and for cooking.

C. E. BROWN, *Yarmouth, N. S.*

Our Book Table.

ELLWANGER & BARRY, Mt. Hope Nurseries, Rochester, N. Y. Novelties in fruit and ornamental trees, etc., etc.

BALTET FRERES, Nurseries at Troyes, France. Catalogue and Prices Current of fruit trees, forest trees, ornamental trees, conifers, shrubs, roses, plants, etc., etc.

ANNUAL REPORT of the Superintendent of Spraying, 1898. W. M. Orr, Winona.

This valuable and convincing report may be had on application to the Dept. of Agriculture, Toronto.

REPORT of the Supt. of Farmers' Institute for 1898. F. W. Hodson, Dept. of Agriculture, Toronto. A most interesting report, and one well worthy of the widest circulation.

SIMMERS GENERAL ANNUAL SEED CATALOGUE for 1899, 147 King St. E., Toronto. A magnificent Catalogue, with a fine set of illustrations. Free on application.

SEED ANNUAL, 1899, D. M. Ferry & Co., Windsor, Ont. A very fine catalogue, highly illustrated.

RINGING GRAPES.

This process is the removal of a small section of the bark surrounding the cane for the purpose of obstructing the downward flow of sap, which is thereby caused to accumulate in excessive quantities in the portions of the cane above the ring, and to supply these portions richly with food materials. Experiments were tried last summer to test the results of ringing on several varieties. The rings of bark were removed in the period between June 27 and July 5, when the grapes were from one-third to one-half grown. The width of the ring removed in most cases was one-half inch, but on some canes only one-fourth inch. The following notes taken at the time of ripening indicate the results on each variety :—

Concord showed the first on the ringed canes to be slightly larger and a day or two in advance of the fruit of the rest of the vine.

Cambridge showed the fruit on the ringed canes to be larger, of better quality, and two or three days, earlier than that on other canes.

Brighton showed no difference in size, but three days difference in earliness.

Columbian Imperial showed very great difference in size, the berries averaged one-fifth larger on the ringed than on the unringed canes, while the ringed canes ripened fruit two weeks earlier than other canes of the same vines.

Agawain showed only a slight difference in size and earliness.

Herbert showed no difference except that the fruit on the ringed canes was poorer in quality than the rest.

Moore's Early showed no perceptible difference in size, quality or earliness.

Niagara showed the fruit on the ringed canes to be two days earlier and slightly superior in quality to that on the canes.

The Delaware showed better and earlier fruit on the ringed than on the unringed canes, but showed the best fruit where only a small section of the bark had been removed.

The best results were obtained on canes where the bark overgrew the sections from which it had been removed. Where the bark overgrows section about the time the first begin to ripen the surplus food material in the cane is drawn away into the lower parts of the vine and the fruit ripens with only a normal quantity of food material present. If the section is not overgrown, the excess of food remains, the fruit is forced to ripen with this excess on hand, and hence ripens improperly.

The width of the section of bark to be removed should vary according to the vigor of the cane and the variety. On strong canes of vigorous varieties three-fourths of an inch is not too much while on feeble varieties one-fourth of an inch may be sufficient.

W. L. HALL.

Kansas State, Agricultural College.

Co-operative Fruit Shipping at St. Catharines, Ont.

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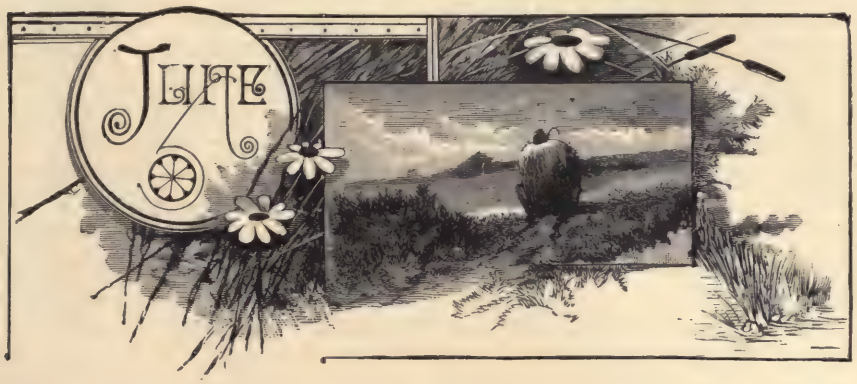

CO-OPERATIVE TRANSPORTATION OF FRUITS.

DURING the early years, in which the fruit industry had its beginnings in these portions of Ontario which seemed from their favorable circumstances and surroundings to be peculiarly adapted for the production of the various fruits of all the temperate zone, the energies of those, whose bent or inclination led them into this particular line, were chiefly devoted to a study of the varieties of the different fruits which seemed to give promise of best results; and also to endeavor to become familiar with the best and most approved methods of cultivation and propagation. That these efforts have been crowned with a fair degree of success, the extensive orchards and vineyards which stretch away for miles in various directions in many localities, give ample evidence.

In this laudable and praiseworthy pursuit, the Ontario Fruit Growers' Association has taken an active part, and much credit is due the various officers of the Association in past years for the success which has attended their efforts.

The time has come however, when the average grower of fruit is not looking so much for new varieties and new approved means of culture, although we have by no means reached the limit in either of these lines; but rather, that he may be able to place the fruits which he is now producing in abundance and of a good quality into the hands of an ever increasing number of consumers in our towns and cities, as well as across the sea in the Home Land, in good order with fair despatch and at reasonable cost for transportation. These are burning questions with the commercial fruit growers to-day, and are engaging the best thought of some of the largest shippers in the various fruit sections.

The illustration accompanying this

article gives a view of an effort made a short time ago on the part of a number of large shippers at St. Catharines to avail themselves of the facilities which presented themselves, whereby shippers might co-operate together and take advantage of the freight service, shipping their fruits in car lots under one management, and thus secure better and more careful handling and satisfactory despatch. Up to the season of 1895 all fruit had been transported either by express or boat, or else by the ordinary local freight in small lots; the objections to these methods seemed to be high rates in the one case, infrequency of boats in another, and slow service and poor handling in the third instance. It was thought by a number of shippers that by loading a full car load from time to time when the circumstances of the case would admit of of it, that it would be an object for the railroads to give rapid transit, and being loaded by the shippers themselves, the fruit would have careful handling, and should arrive at destination in good order; and with carload rates the cost would be somewhat reduced. The frontispiece shows a scene at the N. C. R. Depot, St. Catharines, which was of almost daily occurrence during the early fall of 1895, some thirty-five or forty cars being thus loaded during that year with very satisfactory results.

Since that time the carload shipments have increased very rapidly, until in 1897 some 350 or more cars were shipped via G. T. R., N. C. R. and C. P. R., to the various large centres of Canada and the United States. During 1898 owing to the failure in some lines of fruit the business was not so extensive.

The result of these efforts has been to show the shippers the necessity of some organization among themselves, whereby this work can be carried on in a systematic, business-like manner.

Consequently, a Stock Company was formed in the spring of 1888, for this particular object, called "The St Catharines Cold Storage and Forwarding Co., Ltd.," with a capital stock of $10,000, in shares of ten dollars each. This company has been in existence but little over a year and bids fair to be a very great success. The company contemplates erecting in time for this season's business a modern cold storage warehouse, operated by mechanical refrigeration, they have also a large ice house of their own from which to ice refrigerator cars during the hot weather, and will be prepared to receive, store, and forward all kinds of fruits to any point according to the wish of the shipper.

We congratulate our St. Catharines friends on the efforts that they are putting forth to solve the problem of cheaper and more satisfactory transportation.

W. H. BUNTING.

St Catharines.

ONE of the neatest shrubs for forming a hedge is the California privet; it makes a very neat, dense-foliage plant, and bears any amount of clipping into shape. Another beautiful shrub for the same purpose is the Japanese barberry, *Berberis Thunbergii*. This is handsome at all seasons, bearing a number of coral red berries, which hang on well into the winter, if the birds do not devour them all. In the autumn the foliage turns a bright, deep red. It is broad and compact in its growth.

THE FRUIT GROWING BUSINESS.

THE uncertainty which attends the business of the fruit grower is sometimes very trying to his patience, the results are sometimes so disappointing that he is almost discouraged. If sometimes the returns for a fruit crop are higher than for ordinary crops, it is only a just compensation for the frequent failures to which the crop is subject. Sometimes we meet a summer frost, sometimes a winter of unusual severity; one year the apple crop fails completely, another year it is too small or too scabby for shipment; now the peach, now the pear is a total failure, and a whole year's income is gone.

And when to these misfortunes we add two years of depressed prices such as we have just experienced, it is no wonder that many have turned their attention to other lines, and have offered for sale fruit farms that formerly it was almost impossible to buy. All these considerations however make for the ultimate good of the fruit grower who has made the business his life work, and is not possessed by a fickle mind. The second class will be weeded out. the poor orchards rooted out, and when the good times and higher prices come, the deserving and persevering will have the reward they so well deserve.

As an example of the disappointments which have fallen the lot of many of our fruit growers this spring, we give a letter just received from Mr. W. W. Hillborn, Leamington, an experimenter in peaches, he says:

"I find the damage done to our fruit trees by frost was much greater than we first thought. All nursery trees in this district were killed, about 100,000, and I think I am safe in saying that not less than 95% of all the peach trees planted in orchard are killed. It is hard to believe such to be true when we look at the tops and see they are bursting out nicely in leaf, and most of them very full of blossom buds just beginning to open. When we examine the roots we find nearly all are killed. Many plums, some cherries, pears and apples are injured. I expect to have to clear off the whole farm and start over again. A week ago I thought there were many that would pull through, but at present I fear it will be a clean sweep. Mr. Carpenter, of Winona, has just been here, he says he thinks much damage has been done there also. Mr. W. H. Lee, of Virgil, writes me that his nursery trees (Peach) are all killed. Cannot send out any this season. It is only within the last few days that it was apparent what damage had been done."

This is indeed a deplorable story, and our friend Hillborn, and others in the same boat, have our sincere sympathy; at the same time we admire his pluck, for he writes that he intends replanting as soon as possible. Time will show that he is doing the wise thing.

The result will not be all loss, for the wreck is so wide spread, especially in the Western States, that large prices must result, and the persistent grower must eventually receive his reward.

FIG. 1599.—J. H. HALE.

J. H. Hale, the Connecticut peach grower, seems never discouraged with reverses, and his success is phenomenal. He is an enthusiast, and a quotation from a recent address of his before the

Massachusetts Horticultural Society, will be an inspiration. He says :

The whole theory of successful soil culture consists in selling water, because it is the cheapest gift to man. The grain farmer cuts great chunks off the plant food in the soil and sends it away, so does the potato grower, the market gardener, the hay farmer, and, so to a less extent, the dairyman. The fruit grower keeps most of his plant food at home and sells water just as truly as though he tapped the spring and piped its water down into the market, only the the fruit basket takes the place of pipes.

Fruit culture is one thing that enables us to sell watered stock and satisfy our customers. Disguised in the luscious strawberry, blooming raspberry, ebony blackberry, or beneath the rosy skin of some one of our delicious tree fruits, water finds a ready market at prices that leave "millions in it" for the one who most skillfully assists Nature in "turning water into wine" (fruits). Every season occurs the apparent miracle of turning water, often impure and unwholesome, into rich and healthful fruits, which are "absolutely pure," and free from germs or microbes.

How best and most economically to assist Nature in the work, and reap the greatest rewards, is the question. How shall the watercourses be turned into the channels of tree, plant, and vine, and help to turn the wheels of fruit culture in such a way as to give the best final results ?

A deep ploughing and a thorough pulverization of the soil will make it capable of holding much more water than before. A cubic foot of soil will hold, after being pulverized, a hundred times as much water as the soil would before. This water will be taken up by the roots of your fruit trees and so will swell up your fruit. If you cannot keep enough moisture in the soil by pulverizing you will have to try to do it by mulching and if you cannot do it by mulching, then by irrigation, but let me say that you cannot irrigate a large tract with windmills and tanks.

Just at present a bushel of apples, wheat, or potatoes sells for about the same price, $1 for 60 pounds. In the apples we sell 1 ounce nitrogeon, 1¼ ounces potash, and ½ ounce phosphoric acid, which costs 1½ cents, leaving 98½ cents for the water. Potatoes take from the farm 4 ounces nitrogen, 2 ounces phosphoric acid, and nearly 5 ounces potash, valued at 6¼ cents, leaving 93¾ cents for the water. The bushel of wheat has 1½ pounds nitrogen, 10 ounces phosphoric acid, and 5 of potash, worth 30¼ cents, leaving only 69¾ cents for the water. Fifteen bushels of apples take no more plant food from the soil than one bushel of wheat, yet bottled up under their bright skin you can sell 765 pounds of water for $14.77 ! To sell the same amount of water in wheat would take 84 bushels, or the product of five average acres, while the apples would come from one well grown and well nurtured tree. Eighteen pounds water, ¼ ounce nitrogen, ⅓ ounce potash, and so little phosphoric acid that you cannot see it with a microscope, all costing less than ½ a cent, make 10 quarts of strawberries, that sell for $1, the same as the bushel of wheat, which takes sixty times as much plant food from the soil. Selling water in a strawberry basket enriches both the farm and the farmer.

My trial bed and test plot of strawberries is on medium sandy loam soil, well pulverized to the depth of 15 inches, then subirrigated by ¾-inch perforated iron pipes, lying 6 feet apart, 1 foot below the surface. Every condition is as favorable as I know how to make it

for pumping water into strawberries, and so securing the greatest size and yield. It contains 12 plants each of all leading varieties. Each plant is allowed 2¼ square feet of land. Six of the largest and most productive varieties yielded an average of a little more than one quart to the plant, 18,360 quarts per acre. The average for the whole bed, including many shy fruiting varieties, was ⅘ of a quart per plant, or 13,115 quarts per acre, 400 per cent. increase over 3,200 quarts, the average yield in the State. These berries were so puffed up in size and beauty by extra conditions that their selling price was 50 per cent. about average market prices.

If with water you can float 400 per cent. increased yield into market and soak the price up 50 per cent. more, does that not show profit enough to keep all soil pumps well oiled and leave a good margin for outside fun? Three hundred and forty of my big Japan plums, 82 per cent. water and 18 parts solid, made a bushel that sold at $4.80, while 720 of same varieties 26 parts solid and only 74 of water, made a bushel that sold the same day in the same market at $2.56, or over $1.00 per barrel for the extra percentage of water in the larger plums. Open up the watercourses of the soil, and be ready for the flood tide of prosperity; it is of no use to dam it with "I can't!"

My big peaches—100 to the bushel—92 parts water to 8 parts solid, solid at $5; the same variety, 400 to the bushel, were 84 parts water, 16 of solids, and sold at 70 cents per bushel—$4.60 for the water and 40 cents for the solids in the large fruit, and 58.7 cents for the water and 11.3 cents for the solids in the small ones, or $5.64 per gallon for *extra* water.

UNDERDRAINING THE ORCHARD.

LOCATE drains midway between the rows of trees. The depth of the drains should be from four to five feet, not less than four and as much deeper as the outlet and convenience will allow. The tile should be two or three sizes larger than would be necessary to use in ordinary land draining, to give aeration to the soil, and not be liable to obstructions from small roots. If the drains midway between the rows and as much as four feet and laid with five or six-inch tile, the roots of the trees will not likely reach the drains in sufficient numbers to seriously affect the drainage. The deeper the drains the deeper the roots will penetrate the subsoil. If the drains were eight feet deep the earth midway between the drains and directly under the rows of trees would be affected as deep as seven feet in a few years' time, and the roots of the trees will penetrate as deep as the subsoil is drained within a reasonable limit, say ten feet, possibly more. Trees so deeply rooted are the better secured against injury from the extremes of the weather. With the sufficient under drainage of a fertile, retentive clay soil, the intelligent orchardist with persistent energy is master of the business.—Orange Judd Farmer.

HOW RINGING AFFECTS GRAPES.

FIG. 1600 (1) and (3).—Tools used in ringing grape vines; (2) vine showing ring of bark just removed; (4) same at the close of the season.

RINGING grape vines is practiced by many growers to secure earlier maturity and larger bunches of grapes. A ring of bark is removed from the bearing arm between the main vine and the buds which are to produce the fruit of the season. This does not interfere with the ascent of the sap, which passes through the outer ring of undisturbed wood; but it does prevent the return of the food which has been formed from the sap in the leaves. Thus parts of the branch above the ring can draw upon all the food formed in the leaves of that branch, none of it passing on to build up the parent vine. Consequently the overfed bunches grow faster and become larger than their less favored mates; but the vine itself may suffer, and size may be added and early maturity produced at the expense of quality.

Ringing is performed either with knife or with tools like those shown in Fig. 1600, a band of bark about an inch wide being removed. Since the ringing robs the plant, it must be done with care to prevent permanent injury to the vine by the continued drain. However, by keeping the vines well fed, maintaining a good supply of vigorous foliage kept free from diseases and insects and by modifying the method to suit the system of training, vineyards which have been ringed for ten or fifteen years have been kept growing and still yield heavily. In the two arm Kiffin system of training the ring is removed from each arm beyond the fifth bud thus leaving ten buds to furnish leaf surface to support the vine; in the four-arm system only the two upper arms are ringed, leaving the lower ones for foliage and fruit; and in the renewal system the ring is removed just beyond the renewal bud, so that several shoots in the centre of the vine supply it with necessary food. In any system all fruit below the ring should be removed as it will not ripen well, but will uselessly draw food from the already cheated vine.

To test the process and its modifica-

tions tests have been carried on for two seasons in two localities. At Poughkeepsie the vines were trained on the two-arm Kiffin system and both arms of most of the vines tested were ringed beyond the fifth bud, four vines only being ringed beyond the renewal bud. No difference was noticed between these two methods; but great difference, particularly with some varieties, between ringed and unringed vines. Delaware ripened 9 days earlier, Niagara 14 days, Concord 17 days and Empire State 21 days; and there was a slight gain in size with Moore's Early and Niagara; but Delaware and Moore's Early showed a decided loss in quality, and Worden's tendency to crack was decidedly increased. Two vines of Niagara ringed beyond the renewal bud, succumbed to the treatment, dying before the second season was over. The results of the second season, which was dry and hot toward its close, were not so marked Empire State was the only variety to show gain in size and hasten maturity.

At Lodi the renewal system is used and vines were ringed just beyond the renewal bud. All varieties tested showed a gain in size, compactness of bunches or earliness; this being quite marked with Concord, Geneva and Niagara; but the quality of the finer-flavored sorts, as Delaware and Niagara, was inferior on the ringed vines. In the second season no new growth was allowed to form beyond the fruit on some of the ringed vines, the ends of the vines being trimmed off; and the quality of fruit was improved on such vines. As at Poughkeepsie, the differences in size and earliness were not so striking as in the preceding season.

These experiments tend to show that ringing will mature grapes of some varieties earlier, and will make larger and more compact bunches; but the amount of difference will vary with the variety, season, condition of foliage, cultural care, and quantity of fruit allowed to mature on the vine. The quality of finely flavored grapes is liable to be lowered; but this may be remedied to some extent by trimming ringed vines so but little new growth forms. With careful management the vitality of the vines need not be seriously impaired.

The question of desirability of ringing and profit therefrom is one which each grower must decide for himself.—Geneva Bul. 151.

WHALE-OIL soap should cost about four cents per pound when bought in quantity. It requires no preparation other than dissolving in water, and ordinarily is easily applied. Care should be observed to get an article that will not turn to jelly when dissolved at this rate, for jellied soap is very difficult to spray. The above strength, two pounds to a gallon, should never be applied except in the winter when the trees are entirely dormant, for an application when the buds are swelling or when the leaves are on the tree is sure to do great injury to the tree.

PROPAGATING STRAWBERRIES.—If one has a variety of strawberry desirable for propagation, it is a good practice to peg down the earliest runners close to the ground. If small stones are at hand, one placed at the end of the runner will do as well. Pegs are easily made, cutting twigs into lengths of eight or ten inches, and splitting them. They will then bend like hair-pins; or tooth-picks may be utalized. If small pots of rich earth be placed under the runner's bud, so much the better for an early and strong plant.

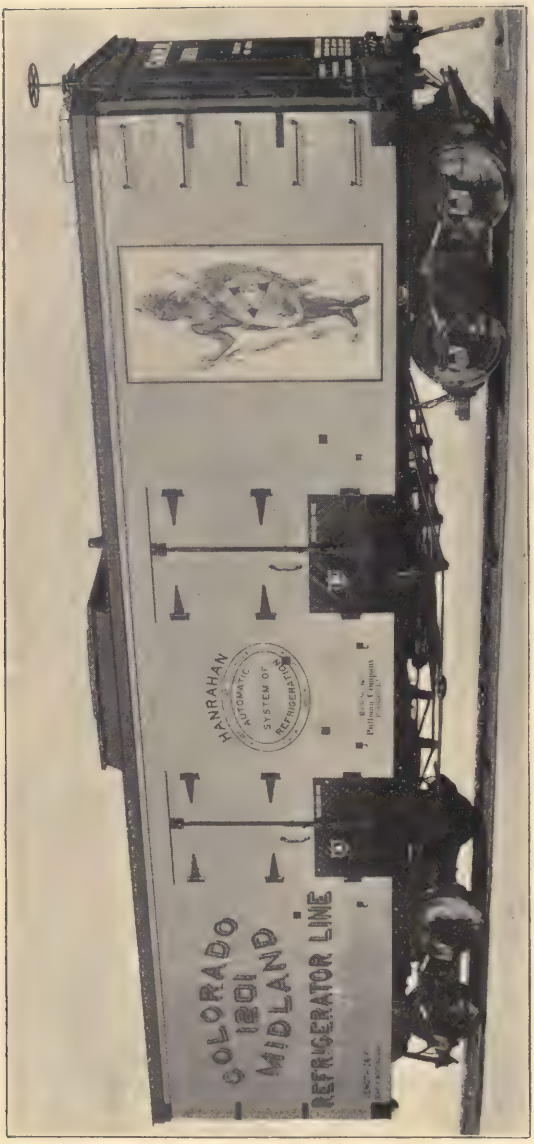

FIG. 1601.—REFRIGERATOR CAR.

THE refrigerator car depicted above is built by the Pullman Co. for the fruit trade, between the southwest and the central and eastern states. It is constructed according to the system invented by Mr. J. F. Hanrahan, formerly of Ottawa, but now of Chicago, and is especially adapted to the carriage of tender fruits and vegetables. Ice alone is used. It is placed in a chamber in the centre of the car in large blocks, just as it comes from the ice house. The consumption of ice is much less than where ice is mixed with salt. In fact Hanrahan cars run between Chicago and New York or Boston without re-icing, while the ordinary refrigerator car has to be twice replenished between these points with a mixture of broken ice and salt. A great saving is made by dispensing with the cost of salt, icing stations, and labor and machinery for smashing, mixing and charging. The cost of the car is moderate while its life is much greater than that of the ordinary refrigerator car. Hanrahan cars that have been running for eight years are as sound to-day as when they were first put in use. The lining of the ordinary refrigerator car, especially in the vicinity of the tanks, is usually wet and slimy and rots away in a few years. On the other hand every part of a Hanrahan car, even the inner sides of the ice chamber is at all times perfectly dry.

As might be expected, the temperature of the car is not as low as where a

mixture of ice and salt is used. In fact Mr. Hanrahan has found a low tempera- unnecessary for the preservation of perishable goods. Cold is not of the the first importance, though the ordinary experimenter thinks of nothing else. What is essential is that the air in the chamber should be kept at all times active, dry, inodorous and otherwise pure. The moisture and odors given off by the goods carried, the heat which they exhale or that which they absorb from the warmer air surrounding the car body, must all be abstracted from the chamber. Decay may be retarded for a time by a low temperature alone, but the products carried or stored, fruit especially, will "go down," or otherwise decay as soon as exposed to ordinary air.

Experiments have demonstrated to Mr. Hanrahan that the elimination of moisture and the products of decay from the refrigerator chamber is of far greater importance than the maintenance of a very low temperature. Such temperatures have been maintained in the shipments that have recently been made to England. The cold was produced by the most approved chemical processes. The temperature of the storage chambers was all that could be desired, but no application was made of the cold produced to rid the storage chamber of the moisture, gases, odors or heat produced by the goods carried. The result was necessarily failure. On the other hand, as Professor Saunders testified a few years ago in his address before the Fruit Growers' Association, large quantities of tender fruits were carried by the Hanrahan process to the Indian and Colonial Exhibition at London, and exhibited in perfect condition. The success of that shipment has never since been duplicated, and it never will be until shippers adopt a rational system of cold storage and transportation. Though Mr. Hanrahan is a Canadian his cars are not running between Canadian points. They however, pass through Ontario every day successfully carrying the products of the United States.

F. R. LATCHFORD.

Ottawa.

DEVICE FOR PICKING GOOSEBERRIES.

IT is the habit of all our sorts of gooseberries to grow in a tangled mass of branches close to the ground, says Orange Judd Farmer,

FIG. 1602.—GOOSEBERRY PICKING MADE EASY.

The result is most difficult picking and scratched hands. Fig. 1602 shows a simple plan to obviate the difficulty. If one has many bushes this plan will prove especially advantageous. The stout wire ring, Fig. 1603 is put about under the low lying branches and hooked. Then the three wires are hooked into it,

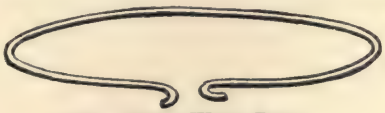

FIG. 1603.—WIRE RING.

the wires drawn up and hooked over the stake that is stuck down in the middle of the bush. One can then reach under the bushes very easily.

THE TENT CATERPILLAR

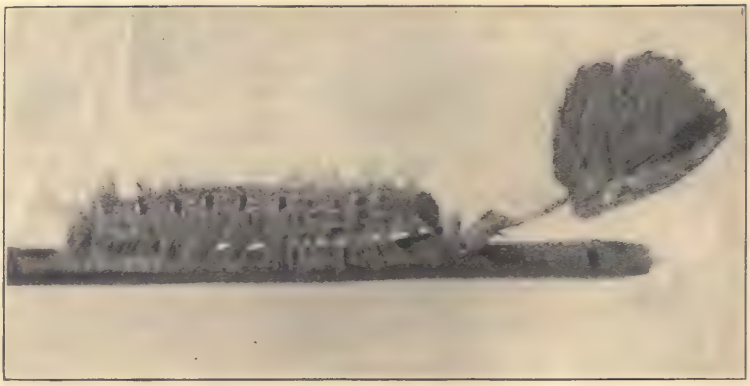

FIG. 1604.—THE TENT-CATERPILLAR.

THE orchardist who suffers severely from the apple-tree tent-caterpillar *(Clisiocampa americana)* must, without a hearing, be condemned as careless. Many did so suffer last year and the unsightly nests of the caterpillars were all too common in otherwise well-kept orchards; yet this pest is almost the easiest to combat of all the fruit-grower's enemies. It may be quite readily located and destroyed while in the egg, the tents are conspicuous and quickly burned, the young caterpillars yield speedily to arsenicals and the white cocoons plainly show themselves for destruction on the sides of buildings, on fences and on rubbish, where they are usually placed.

The effect of the nests in marring the beauty of the orchard should be sufficient reason for proceeding vigorously against this enemy; but a more influential motive lies in the voracious feeding habits of the larvæ. The caterpillars in a nest of ordinary size will consume 2,500 apple leaves in a week; and as they feed for five or six weeks, those from two or three nests may almost completely strip a tree of its foliage and greatly lower its vitality. They seem to prefer the taste of the wild cherry, and this tree was probably their original food plant. All such trees should be carefully watched as they are liable to be starting points for the invasion of nearby orchards. Next to the wild cherry the caterpillars seek the apple; but they also do considerable damage upon cherry, plum and peach; and are known to feed upon the rose and other members of the rose family, and upon witch hazel, beech, birch, oaks, willows and poplars.

During most of the year, from late July until the following spring, the insect will be found in the egg. These eggs are laid in peculiar rings or bands, "thimbles" or "caterpillar belts" some call them, about the smaller twigs as shown in Fig. 1605. From 150 to 250 of these eggs are crowded together in this band, which may reach nearly, or quite round the twig. It is covered with a thick layer of glue which makes a glistening protection from the weather. These bands are large enough to be plainly seen and can easily be removed and burned when pruning the trees. In

many places it may pay to offer a small price per hundred to encourage the children to collect them. This was tried in New Hampshire and one case is recorded where 8,250 egg masses, equivalent to 1,237,500 eggs, were collected for $8.25. The little caterpillars form in the eggs in the summer but do not hatch until the middle or last of the following April. If food is not yet plenty they live for a few days upon the glue which has been their winter bed-blanket, but soon begin the construction of the well-known nests. These are usually placed in some crotch of twigs near the abandoned little honeycomb-like egg-band and are formed by the threads of silk which the caterpillars spin As the larvæ grow and the nest becomes too small another sheet of threads is spun, so that the tent is really a succession of nests one outside the other. These white or yellowish masses of silk are easily destroyed by burning on the tree or by cutting off the twig and crushing the nest. This should be done in the evening or just before a storm when the caterpillars have sought shelter.

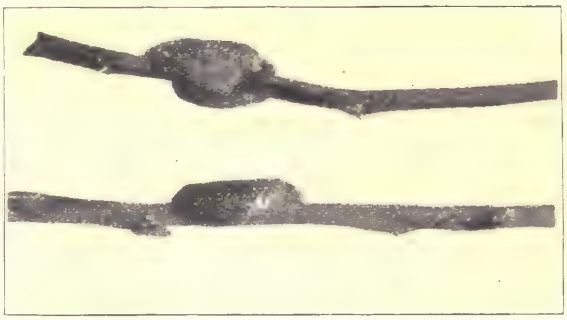

FIG. 1605.—EGG MASSES OF APPLE-TREE TENT-CATERPILLAR.

The caterpillars feed until late in May, when, after four or five molts, they are of the size and appearance shown in Fig. 1604. The body color is black, but a prominent white stripe extends the full length of the back. There are also numerous shorter irregular white lines and a row of oval, pale blue spots upon each side; while the entire body is thinly covered with long yellowish hairs. The caterpillars, especially when young, can easily be killed by two or three sprayings with some arsenical poison. Several natural agencies serve to keep the caterpillars within limits: Some of the ground beetles and the spiny soldier bugs catch and eat the larvæ; several species lay their eggs within the bodies of the caterpillars and the little grubs which hatch from them live upon the caterpillars' life blood; and a bacterial disease frequently destroys large numbers. These friendly agencies are but slightly under man's control; but the birds which prey upon the pest would respond quickly and beneficently to efforts to protect and encourage them. The principal birds feeding upon the tent-caterpillar are the yellow-billed and black-billed cuckoos and the black-capped chickadee, but others known to do some service in this line are the Baltimore oriole, red-eyed and warbling vireos, wren, chipping-sparrow, yellow warbler and crow.

The larvæ crawl down the trunks of the trees in late May, when they are mature and are nearly two inches long, and spin their cocoons on the trunks of the trees where partially protected by the rough bark, in the grass under the trees, on and about the fences, and very often about the eaves and window casings and along the sides of out buildings. These cocoons are quite conspicuous even when placed singly; but

when in succession as shown in Fig. 1606, there is no excuse for not discovering and destroying them.

From these cocoons the reddish-brown moths emerge in late June and early July and soon lay the eggs which complete the life cycle. These moths are quite large, as shown in Fig. 1607, and are easily distinguishable from all but a few closely related species, by the two oblique, nearly parallel bands of white crossing the fore wings.

quite similar to the apple tree tent-caterpillar in appearance or habits and which may do damage in the orchards, though not usually so abundant as these species. The forest tent-caterpillar (*Clisiocampa disstria*) ordinarily feeds in the woods upon the maple; but frequently mingles with its relatives in the orchards and is distinguishable from them only by a few minor characteristics. The egg-masses, are similarly placed but are cut off squarely at the ends instead of

FIG. 1606.—COCOONS OF THE APPLE-TREE TENT-CATERPILLAR. Natural size (Original.)

Most of the measures to be taken against this pest have already been indicated but may be concisely summarized as follows: Protect and encourage birds; destroy the egg-bands and cocoons and reward the children for collecting them; burn out or crush the nests while the caterpillars are in them; spray the trees with Paris green, and last, but not least, see that wild cherry trees, crabapple trees and neglected apple trees along the roadsides are kept free from the pests or cut down.

There are two other insects which are being somewhat sloping as are those of the apple-tree caterpillar. This is caused by the eggs in the end rows of the bunch, as well as those in the center, being placed upright; while the end rows of the first described masses are inclined. The tents are more delicate and less conspicuous and are frequently lacking; the caterpillars have a row of diamond-shaped white spots along the back instead of a single white line; and the parallel bands across the wings of the moths are dark rather than white and the space between the lines is darker.

FIG. 1607.—FEMALE MOTH OF THE APPLE-TREE TENT-CATERPILLAR.

The fall-web worm (*Hyphantria cunea.* makes a tent in the fall—not in the spring—which includes the leaves upon which the caterpillars feed; these latter pupate in the fall and pass the winter in the cocoons. The moths, which are white or slightly flecked with color, emerge in the spring.

The methods of repression for these insects are similar to those given for the apple-tree tent-caterpillar.—Geneva Experiment Station.

THINNING FRUIT.

We will next consider the thinning of fruit. I wonder how many of you practice the thinning of fruit on your apple trees. Now, apple trees will do a good deal if you do nothing for them. But the man who wants good apples—apples that will pay—in the future will practice thinning his fruit. I should take a young tree which attempted to produce one hundred apples, and remove at least fifty of them, leaving not more than fifty to ripen. The next year, if it attempted to produce two hundred, I should leave one hundred or less, and the next, if it had one thousand apples, I should leave three or four hundred only. By this method I should get that tree into the habit of annual bearing. The man who will make fruit growing a profitable business will thin all his fruit. A peach tree that will set one thousand peaches needs to have six or seven hundred thinned off. The commercial side of fruit growing demands thinning of nearly all your fruits. You will get more bushels to the tree within reasonable bounds; the more you throw away the more pounds or bushels you will have left, increased size more than making up loss in number. In thinning Japanese plums I should leave the fruit four inches apart, and peaches from five to six inches. If you will make a practice of thinning your fruit from the trees, you will usually get four dollars for one. I have often had it increase the crop fifty per cent, and the selling prices five hundred per cent.—J. H. HALE, before Mass. Hort. Society.

THE SECRET OF PROFITABLE STRAWBERRY GROWING.

I HAVE long ago come to the conclusion that the great secret of growing strawberries profitably, and the one most difficult to solve, is to find out the varieties which are most suited to the particular soil and climate in which they have to be raised. Not only has this been my own personal experience, but I have noticed in studying the numerous reports of the various experiment stations, that while one variety may be most productive at one place, it will be utterly worthless in another. The varieties not only differ in vigor and prolificacy, but they seem to vary sometimes in firmness and I often note that one variety is reported as firm at one station, and soft at another. Varieties, however, that are large or small, late or early, have good fruit stems or poor ones, seem to have these characteristics nearly everywhere It is mainly in the quantity and not the quality that the strawberry varies, and out of 80 varieties you may often notice whereas the 5 or 6 best varieties yielded at the rate of 5,000 or 6,000 quarts per acre, the remaining 75 will not average 2,000 quarts.

These variations occur not only in the newer and untried varieties, but even in the old standard sorts, although to a less extent. Frequently one sees a certain variety at the very top of the list at some one station, and always doing well there, while I fail to find it favorably mentioned any where else.

In the selection of varieties it is almost useless to go by the description given in the nursery catalogues, as a variety may do exceedingly well on the particular spot where it originated and yet be utterly worthless nearly everywhere else. Furthermore, the descriptions given are seldom impartial. The only safe plan is to select those varieties which will give the best results in the greatest number of neighborhoods, as the chances are in favor of some of them giving the best results on your own farm. Get 100 of each variety and note the results, and then grow only those which have turned out well.

The above is, as I say, the safest plan, but it is not the best way of getting the very best varieties, because your selection will only be made from old standard sorts, whereas my own experience is that the very best results are from the newer varieties, that have only been propagated some 5 or 6 years. This is partly due to the fact that varieties are apt to degenerate or run out after many years of careless propagation, and partly due to the fact that some other newer varieties are undoubtedly an improvement upon the older ones, especially in size and number of quarts to the acre. Some three years ago I made a selection from about 60 of the most popular varieties and only Enhance, Greenville, Beder Wood, Warfield, Captain Jack and Gandy gave good results, and the latter was by no means prolific, although the quality was the very best. These were, however, altogether beaten by the Bismarck and two or three new varieties, not now in general cultivation.

This has led me to make a still further trial of some of the newer varieties, which have given the best results in some particular sections, and it may interest your readers to go over my selection, bearing in mind that the qualities which I aim at are vigor and productiveness, combined with a large

berry, for I find that buyers *will* have large strawberries. Then the fruit must be firm enough to stand shipment of 300 or 400 miles and keep in good condition for 48 hours after gathering. I want some early varieties, but not unless the quality is A No. 1, for if my first shipments are small and inferior, my customers fail to repeat their orders, thinking that the late ones will be equally poor. It usually pays me quite as well to be able to prolong my shipments, as to begin extra early. I also look for varieties with good fruit stems that will hold the berries out of the mud when we irrigate. Now I do not mean to say that all the varieties I have selected for fruit come up to my standard, nor are they all of recent introduction, but I am led to believe that some few of them may beat any I have hitherto tried. They are Magoon, Pride of Cumberland, Edward's Favorite, Kentucky, Splendid, Jessie, Glen Mary, Jerry Rusk, Eureka, Gertrude, Sunnyside, Hunn, Laxton's Noble, Nick Ohmer, Robinson, Holland, Carrie, Enormous, Ruby, Hall's Favorite, Ohio Centennial, Beverly, Iowa Beauty, Martha, Muskingum, Princess, Aroma, Giant, Crawford, Equinox, Princeton Chief, Georgia Triumph, Fountain, Ridgeway, Ponderosa, Clyde.

It will be noticed that a great number of well-known and equally good new varieties are missing from this list, but this is because myself or some one else has tried them and found them deficient in some necessary quality. Other growers may have better results with such strawberries as Brandywine, Wm. Belt, Mary, Parker Earle, Lady Thompson, Woolverton, etc.

From my own experience I believe that the man who tries 100 and selects 5 or 6 of those that give him the best results, will raise double, if not thrible, the quantity of fruit per acre, and better fruit too, than if he follows the advice of some book or plant catalogue, or even the advice of a friend.—F. C. BARKER, *in Strawberry Culture.*

A DREADED PEST OF THE APPLE.

THE apple maggot, or railroad worm, is a serious pest that is rapidly spreading from the east to the west. The mature insect is a fly, which cannot readily be poisoned, and it is supposed that the eggs which produce the maggots are deposited by the flies in the pulp of the apple beneath the skin, so that the young maggots are secure within the fruit, from the time the eggs are laid until they are mature and emerge from the apple to go into the ground. The maggot is very small, and honeycombs the fruit doing little material injury to the skin or exterior appearance, but causes streaks of rot in the flesh of the fruit, that are very repugnant to the consumer. The soil beneath infected trees was examined at the Rhode Island experiment station last fall (bulletin 37, L. F. Kinney), and the number of maggots that were secreted under different trees was estimated to be

FIG. 1608.—MATURE FLY OF APPLE MAGGOT.

FIG. 1609.—APPLE MAGGOT

from 1600 to over 12,000. When hens were penned under the trees, they worked faithfully and seemed to get enough food from the ground to sustain them during three or four days. It appeared as if few of the maggots were likely to be overlooked by the hens. It is probable that the apple maggots remain in the pupa state in the soil beneath the trees in that latitude from the time they leave the apple in the fall until the following spring, so that confining poultry in the orchard in the fall is the most practical treatment for this pest that can now be suggested. It is important to ascertain the distribution of the pest, and all who observe it will please report to us. Carefully feeding all windfalls or refuse apples to hogs or the stock is advised. Sheep, hogs and poultry should be kept in the orchard after haying, if not before. Clean culture is also advised. Spraying is no protection against this pest, because it does not affect the fly that lays the egg. —Am. Agri.

FAMEUSE APPLE.

AT a recent meeting of the Montreal Horticultural Society, of which Mr. W. W. Dunlop has been for many years the esteemed Secretary, the following tribute was given to this *famous* apple.

I once heard a remark by that veteran pomologist, Dr. T. H. Hoskins, of Vermont, which struck me forcibly at the time. He said: 'I believe there are about three hundred kinds of Fameuse.' This, of course, was said in joke, but expressed the fact that numerous apples of Fameuse type were known to exist on the island and vicinity. We know of the Red Fameuse, the Fameuse, there is also the Striped Fameuse (Fameuse barre), of which no doubt the Snow apple of Ontario is a degenerate offspring There are the Fameuse Sucre, and many seedlings which closely resemble the parent.

The Canada Baldwin, Decarie and McIntosh Red are very near relations of La Fameuse. The Red Fameuse is, no doubt, the handsomest, the most productive, successful and profitable apple of this province. It excels all other varieties for quality, and since the advent of spraying with Bordeaux mixture we can grow as fine specimens as in years gone by.

The Fameuse has been known probably over two hundred years. Trees were sent to England, and the fruit exhibited there at the Horticultural Society exhibitions as early as 1818. It is a common fallacy to suppose that Fameuse is dying out. Let me tell you that as long as a variety is profitable it will not die out. For example, the Ribston Pippin of England, produced from seed brought from Normandy, it is said, about 1689, is yet one of the most popular apples of England, and to-day is very largely grown in Nova Scotia and Ontario.

The American Baldwin was introduced about 1750, the Rhode Island Greening about 1765. The Roxbury Russet originated about 1649. All of the above mentioned are favorite market varieties of the present day.

The Fameuse has within the last three

or four seasons become a great favorite, famous in England. Since the means of ocean transportation are improving year by year, the successful exportation of this favorite apple to England is assured. Cold storage in transit, is, thanks to our honorable Minister of Agriculture, an accomplished fact. By means of cold storage we can not only put our fruit on the London market in prime condition in the autumn, but in years of plenty, by placing our crop in cold storage here, and sending forward shipments during winter as prices on the other side improve, prevent a glut in the English market which often obtains during heavy fall shipments. My advice to the orchardists of this province is, keep on planting Fameuse, as well, of course, as other varieties that are profitable.

FRUIT INSPECTION NECESSARY.

STRONG resolutions have been forwarded the Canadian Department of Agriculture by our Association asking that ventilation of holds in vessels intended to carry our apples and other fruits, be insisted upon; that government agents be placed at the principal shipping parts to see after the proper loading and storage of our fruits; and that some steps be taken toward inspection of fruit in closed packages intended for export.

In these requests, the Fruit Growers' Association's and Horticultural societies of the Dominion have united with us in pressing upon the Minister of Agriculture, and we are glad to report that some immediate action will be taken in our behalf, especially in the two first mentioned points, The latter one, and in our opinion the most important of the three, seems likely to be shelved, because no definite and practical plan has yet been placed before the Minister.

A special despatch to the Globe, dated Ottawa, May 16th, says:—

Prof. Robertson tells the Agricultural Committee this morning that the Canadian apple trade in Great Britian is not in a good way owing to lack of care, lack of skill and lack of honesty in packing the fruit and to damage sustained by the fruit in its carriage across the Atlantic. Representations have been made to steamship agents for proper ventilation of holds in which apples were carried, but up to the present few ships have been so equipped.

In proof of the deception practised in packing, Prof. Robertson read a letter from ex-Mayor Warne of Yarmouth, N. S., where the salvaged cargo of the Castilian was sold. Mr. Warne expressed disgust at the way in which the barrels were packed, with windfalls in the centre. He sent on two samples of top rows and fillings, which Prof. Robertson showed the committee. The latter was a miserable specimen, not one-sixth the size of the apple which was used at the two ends of the barrel. Prof. Robertson stated that he had considerable evidence of the form of dishonesty which was going to injure the Canadian apple trade if it was not stopped.

Several members suggested that inspectors should be placed at the different ports in order to prevent badly packed or dishonest shipments, but Prof. Robertson pointed out that this was a difficult question to settle. If the fruit-growers would only realize the injury they were doing themselves they would give up the practice.

Mr. Grindley, the special agent of the department in Britian, pointed out how the Nova Scotia and California apples had made a place for themselves by being of uniform quality and size, and of one or two varieties, although the so-called Canadian apples were of far better quality. But these latter were of so many varieties and so badly packed that they were not wanted on the London market and were sent down into the provinces. A model packer was Mr. R. W. Shepherd, of Como, who shipped Fameuse apples to the Prince of Wales and the Army and Navy stores in boxes with a pasteboard compartment for each apple and these arrrived in excellent condition. Mr. Grindley spoke strongly on the necessity for proper packing and grading, and packing fruit in a cool state. He was glad to know that the steamship companies were going to provide ventilated compartments for apples.

Hon. Mr. Fisher stated that thousands of Ontario apples like those shown by Prof. Robertson had been sent to England last year, to the great disgrace of Canada.

Mr. Grindley gave much good advice regarding growing, grading and packing.

Hon. Mr. Fisher went over some points of interest to shippers and growers. He had for a year past received so many letters that he felt it was necessary to investigate statements. The committee had taken exception last year to the spreading abroad of statements regarding dishonest packing, but the reports were such that he was satisfied that the matter must be faced. Hundreds of barrels had been sent of such a sort that the trade would be ruined if something was not done. The English people wanted an honest apple, and if they did not get it from Canada this country's trade would be gone. The question of inspection had been brought to his notice, but there was great difficulty in the way. The only way to thoroughly inspect apples was to empty a whole barrel out, and the fruit could not be repacked without loss. Besides, when it was remembered that in a few weeks in autumn over 100,000 barrels were shipped from Montreal, it would be seen how impossible it would be to inspect all the shipments.

But something could be done to obtain good conditions on the steamer and the department would continue its efforts to have the companies provide properly ventilated holds. This season, if he got the vote he asked for, he would have officers at Montreal, St. John and Halifax to specially look after the shipping and loading of apples. The difficulties in the way of Government inspection were numerous, and he preferred to bring all the facts of the matter before the public. As to the quality and grading of the fruit, the growers and shippers had the remedy in their own hands.

Now of what avail will it be to have first-class conveniences on ship board, and proper storage, if no steps are taken to stop the rascally practices of certain large buyers and shippers who buy whole orchard crops and pack them in the manner that was exposed by the wreck of the steamer *Castilian?* It is not our Canadian apple growers that are guilty of this dishonesty. It is certain sharpers who are making a big speculation for their own pockets at the expense of the reputation of our honest fruit growers.

These men do an enormous trade; they buy our apples at 75 cents or $1 per barrel, send their gangs of packers through the country, with definite instructions to put all the small, poor apples in the centres of the barrel, to save out all the big fine apples to face up the ends.

Are our authorities powerless to stop this roguery? It is all very well to bring the facts before the public and depend upon moral suasion and patriotism to correct the evil; but the rogues will still practice their deceit, and laugh at us while they fill their pockets at our expense.

But how could an inspector go through the 100,000 barrels of apples, or more, shipped from Montreal in a single season?

Why, there is no need of such a thing. The very fact of an inspector being appointed would frighten these thieves, even if he never did a thing more than pace the wharves at Montreal with his hands in his pockets. But let him keep his eyes open, and his hands a little busy with a barrel opener, and he would very soon get track of the brands that were unreliable. We can give him the names of a few who shipped such stuff on the *Castiltan*, and our English friends can name others.

Give the inspector the privilege of inspecting any lot he chooses—no one but a rogue will object—and if he finds one fraudulent package, then let him detain that whole lot for careful examination. If he finds ten barrels out of a hundred fradulent let him forbid the shipment of the whole lot, or confiscate them. We venture to say that after the first season the inspector would have very little work to do; for the very fact of his being at the port and the possibility of his opening some barrels for examination would have a most salutary effect upon the whole apple shipping fraternity.

ABOUT THINNING FRUIT.

A SMALL, insipid, worthless peach is sure to be the result when this system is not practised, in instances where the trees are overloaded. The product is wanted by no one, and rarely will sell for sufficient to pay the cost of marketing. From an economic stand-point it does not pay.

The rule I have adopted is to thin the fruit so as to leave that remaining about six inches apart on the limbs. I have found the same rule to work equally well when applied to apples and pears, particularly if the former are to find their way on to the city fruitstands. Four dollars per barrel was received for apples in October last thus treated, that would not have turned the scales at two dollars, if left untouched. Mr. John Craig and Prof. Waugh, of Vermont, saw this fruit when being packed for shipment, and could scarcely recognize the variety, as they had seen it grown in other sections.

One-half of the crop of an extremely heavy setting of Kieffer pears was removed and allowed to go to waste on the ground. The portion that matured was fine and sold at high prices, and in my opinion gave a larger yield than if all had remained on the trees.

Many canning factories in purchasing the apples and pears consumed, demand that no fruit delivered them shall run under a specified diameter. They are important factors in the consumption of our surplus fruits; hence their requirement is an additional argument in favor of the work suggested that deserves more general consideration at the hands of all growers of fruit.—Correspondence Country Gentleman.

NOTES FOR STRAWBERRY CULTURE.

STRAWBERRY plants require an abundance of moisture in all stages of growth, but this is most easily secured during the first season by attending to the proper details in preparation of the soil, and in cultivation.

Early and continuous cultivation saves the moisture to a greater extent than is commonly supposed. It has been found that the loss of moisture from unplowed ground may be in excess of that from cultivated soil to an amount equal to an inch and three-fourths of rainfall in a week. A man with a team and a sprinkling cart could not replace the water on an acre of land as fast as it escapes by evaporation from the soil, when it goes off at that rate, if he had to haul the water one fourth of a mile. The importance of stirring the soil soon after a shower is generally known; but in practice, cultivation after slight showers is often neglected. This is because the soil does not become compact and no crust forms after slight showers, hence the necessity of stirring the soil at once is not apparent.

A slight wetting of dry soil, however, increases the upward flow of water, hence there is more water added to the surface soil at such times than comes in the form of rain.

The sun and wind soon dissipate the slight rainfall and along with it much of the water which came from the lower layers of the soil, leaving the soil dryer than before.

As the two are commonly used, a cultivator is a better machine for irrigating than a sprinkling cart. The cultivator, if rightly used, saves moisture, while the sprinkling cart is more likely than not to be the means of wasting it.—Ohio Bul. 85.

THE CELERY CROP.

THE culture of celery, either for the family garden or more extensively for market, has been so simplified that every home should have its supply the season through and well along into winter. From extensive and careful tests the past season with different varieties and the new and old methods of culture, we conclude that while the so-called self-blanching sorts are more easily grown and more profitable for the market gardens, they have not the crisp, nutty flavor, nor the long keeping qualities that will recommend them for the home garden. For this the "one" variety is Giant Pascal; it is the king of celeries. Paris, golden self-blanching, is the best of its class, and New Rose the best red variety.

Regarding culture, the old trench system is done away with, and the celery plants are set on the level surface, about 6 in apart in rows, from 3 to 4 ft. apart. After the celery has attained to a growth of 10 or 12 in it. should be "handled;" that is, the earth should be drawn up firmly for a few inches around the base of the plants to cause the erect or upright growth necessary for celery. According to the most approved method now in use, this handling is all the celery gets; all the subsequent bleaching is done with boards 10 to 14 in. wide, and of any desired length, placed close up to the plants on each side and held together by stakes. These blanch the celery perfectly, keep the plants free from dirt, and after the first cost are the cheapest of any method of culture.

The old theory that contact with the ground was necessary to blanch celery is exploded. For the benefit of novices it may be best to state briefly that for early celery, the plants may be grown in spent hotbeds, about April, and transplanted about June, will furnish celery for the table all the fall. Early celery hardly ever escapes blight or rust. For winter use sow seed in open ground and you get stocky plants to set during July and on into August. Celery needs cool weather to grow its best, and the later it can be left out before being winter packed the better it will save. Mind, however, when preparing celery for winter not to handle or pack when wet with dew or rain.—[E. V. Albany Co., N. Y.]

NOTES FROM SIMCOE COUNTY.

THOUGH the past winter was a pretty severe one, and we read of extensive damage to tender fruits in southern Ontario, yet everything in the fruit line has come through fairly well here. I quite expected to find a number of the more tender varieties killed or badly injured. But very little damage has resulted. All the tree fruits with the exception of a few Dwarf Duchess pears, have come through all right. The Purple apricots had a close shave, but seem to be coming all right now.

Of the small fruits, strawberries have been badly winter killed where not protected. Early King and Erie blackberries are killed down to the snow line, while Agawam and Eldorado are alive and healthy down to the ends of the tips. Raspberries have come through well. Even the Cuthbert better than usual. I have had this year a very interesting example of the wonderful

recuperative powers of nature. I had top-grafted a number of Flemish Beauty and Russian pears with several of the more tender varieties. They made a rapid growth, and on that account I thought they would surely succumb to the severity of the winter.

I examined them in March and they were to all appearance dead. The bark and tissues were dark and discolored like dead wood. I thought they were gone for sure. But I was agreeably surprised to see them budding out. The bark has again become green and the tissues assumed the normal healthy condition, and they are now nearly out in leaf. Prof. Bailey writing on this subject, says that trees store up nutriment in their tissues sufficient to bring the tree into full leaf, yet if badly injured from severe cold they may die later on owing to the frozen wood being unable to draw nourishment from the soil. For the same reason a tree will blossom, the petals will open although the pistil, the vital part of the blossom, may be killed during the winter. He says there are exceptional cases, as in the case of a vigorous healthy tree which may entirely recover though apparently winter killed; and if these grafts entirely recover it will be one of the most remarkable cases of recuperation that has yet come under my notice. I believe that good care and cultivation has much to do with the hardiness of a tree, and that a tree is much like a man in this respect. The more vigorous and healthy he is, the better will he be able to withstand extremes of temperature. Proper fertilizing has no doubt much to do with it. Furnishing the tree with a well balanced ration will be conducive to the building up of good healthy hardy wood and a vigorous constitution.

This will be an off year for plums and early apples here, apparently. They bore such a large crop last year, that they failed to form fruit buds. But winter apples, judging from present appearances will be the largest crop since 1896.

The tent caterpillar is very much in evidence, and promises to repeat the devastation of last year in some orchards. But where people spray their trees and do it properly, there is no trouble. For the destruction of the codling moth, a valuable adjunct to the spraying of the trees, is the placing of pieces of canvas or woollen rags in the crotches of the trees, and examining them occasionally after the apples begin to drop. I tried it last year on a small scale and found it a great success.

When an orchard is cleanly cultivated and the trees scraped to remove the rough bark, the larva of the moth readily take advantage of the rags, as a suitable place to pupate in, here they spin around them their cocoon from which they emerge a perfect insect. From the time the early apples begin to drop these traps should be examined occasionally until late fall. When a number have collected, the rags may be plunged in boiling water and replaced. They should be examined late in the fall and again in spring before the blossoms come out.

Keeping hogs in the orchard to eat up the fallen apples is, where practicable, also a valuable aid.

I believe if these methods were used together with a faithful and proper use of the spray pump, he codlin moth would soon be almost entirely exterminated.

PUFF BALL—*Lycoperdon Gemmatum*. MUSHROOM FAMILY.

AS we stroll through the dry pastures after a rain we are likely to spy balls of grayish white here and there along the path, some half-hidden beneath the fallen leaves, some large enough to stand out boldly among the surrounding grasses and small plants.

Let us pick up one and break it open. Within we shall find, if the fungus is young, a mass of firm white substance which, as we examine it, looks rather pretty. Perhaps we shall find one a little older; the inside of that will be of a gray color with a spongy texture.

As the puff-ball grows still older, its outer skin turns brown and becomes papery, and the substance within, really a great number of spores, become ripe and separate into loose particles that seem almost like fine dust. When fully ripe the ball bursts at the top and the little spores go flying all about, lodging in many a little crack and crevice.

The puff-ball is edible only when the spores contained within the skin form a fine-grained, firm white mass. Then the skin may be removed and the "meaty" substance fried in butter as a dish for the table.

Of this dish, one versed in the art of cooking and eating mushrooms, says: "Slice and seasoned in butter and salt, and fried in the pan, no omelette is half as good in richness and delicacy of flavor."

One variety of puff-ball grows quite large, one ball often weighing several pounds, so that it is sufficient to make a good meal for a large family. When mature, the spores of this species are sometimes used to stanch wounds; the smoke coming from the burning spores will stupefy bees and may also be employed as an anæsthetic.

In England puff balls are often called Puck-fist and Puck's stool. Another name, referring to the discharge of the spores from the ball, is Devil's snuffbox. The Scotch call this fungus "blind men's een," and it is thought that the dust, if a bit of it should blow into one's eyes, would cause blindness. The Welsh term it "bag of smoke."—American Florist.

THE CROTON has long been regarded as one of the handsomest conservatory plants, and it is now coming into use for house and garden. It is a stout shrubby tropical plant, grown solely for for its handsome foliage; the flower is insignificant. The leaves are usually very richly colored, green, bronze, red and yellow, and the shape varies greatly in different varieties. Some crotons have narrow, ribbon-like leaves; others are strap-like, twisted like a cork-screw, rolled up like shavings, or fluted into waves along the edge. It is only of recent years that the crotons have been used in bedding; in a favorable situtation they make a piece of gorgeous color, but they will not stand an exposed place, where rhey will suffer from sweeping wind. They must not be planted out before the middle of June, and must be taken np before the nights become cold in Autumn. Indoors a croton makes a fine centre for the fern pan, though it does not last very long under these circumstances; small plants are also very suitable for the Wardian case, and luxuriate its close, moist atmosphere.

Flower Garden and Lawn.

THE FREESIA.

(Part III. of a paper read before the Hamilton Horticultural Society, by Mr. Wm. Hunt.)

FIG. 1610.—THE FREESIA.

AND now we come to the last of my three subjects, the Freesia, that beautiful little bulb which produces those deliciously scented, tube like flowers, so popular with every one for button-holes, sprays, or table decoration, and which are to be seen in every florist's window in early spring. We are also indebted to the Cape of Good Hope for this little gem in the bulb line. It is of recent introduction, not having been brought prominently into notice until about twenty-five years ago. There are two varieties of the Freesia, they both belong to the natural order of Irids, which include several numerous classes of plants. The *Freesia refracta alba* is as its name implies, nearly white in color; the other variety, *Freesia leitchlinii* being very similar to *refracta alba*, of a somewhat stronger growth than the latter, a creamy yellow tinge running through the flower with a deep blotch of orange color on one or more of the petals, giving it rather a pretty appearance.

With the Freesias, as with most other classes of plants increased from seed, we have already variations from the original; in some flowers a bluish tinge may be noticed, but not of sufficient importance to produce any material difference, either in growth, or color of flower. By sowing the seed early in the spring and growing on in pots or frames they can be flowered the same year. The best way to raise them from seed is to sow a few seeds in two and a half inch pots, thin the plants when about one and a half inches high to five or six, or more in a pot, and grow on into five or six inch pots. To flower in this method prevents any check when

transplanting, as they do not like to be disturbed at the roots when in a growing state. Or you may secure some good bulbs from any seed or florist's establishment when the bulbs are dormant; get them in July or August if possible, when they can be at once potted into four or five inch pots, filled with good loamy potting soil, very little if any drainage being required. Plant the bulbs so that the tip or point of the bulb is just under the soil; press the soil lightly around the bulbs, water thoroughly. If the soil settles, so that the bulbs show, cover with more soil, water, and either plunge or stand the pot out-of-doors on coal ashes, to prevent worms getting into the pots. Water only when appearing to be dry; sparingly at first, but sufficient to soak the soil; increase the supply of water as required when growth commences, which will be slow. The pots can remain out of doors until about September, when they can be taken in and placed in a cool temperature, ranging from 40° to 55°, as the freesia rebels at any attempt to force it, resenting such treatment by producing small and inferior spikes of flowers, and producing small bulbs which will give poor results the following season. A few pots may be put into a warmer position when flower spikes appear so as to secure a few early flowers; by judicious management a succession of bloom may be secured from Xmas until Easter, possibly later. The plants may be supported as required; I find the best plan is to put four or five small sticks around the edge of the pot, high enough to support the foliage, and wind around from one to the other of these fine twine or raffia. The after treatment of this bulb is very simple; keep them growing in a temperature as at first mentioned until the foliage shows signs of decay, then dry off gradually, until the foliage is nearly yellow, then withhold water altogether, stand the pots foliage and all away in a dry cool place, free from frost, until the following summer, when they can be shaken out and potted as above described. The freesia can be increased very easily, if the small bulbs found when repotting are picked out, and sown in boxes or pots similar to seeds of the same size, treating after as for larger bulbs, picking out any bulbs that are large enough to flower when repotting them and grow, ing the small ones on again until large enough for flowering purposes.

In conclusion, I may say that no plant that I know of, will give more pleasure and gratification than this pretty little Cape, as it is easy of culture, and of graceful habit, which with its prettily formed and sweetly perfumed flowers, make it so desirable an acquisition to the amateur's collection of plants. I may add in conclusion, that neither of the three plants, treated on in this paper, will give the amateur much trouble with insect pests, a point that strongly recommends them as window plants.

EARLY SEED SOWING.—Plant seeds of nearly all varieties to be started indoors as follows: Fill shallow boxes nearly full of good garden soil, sprinkle the seed over, then sift on enough fine soil to cover the seeds well from sight, press down fimly with a bit of board, sprinkle or set the box into a pan containing an inch or two of water until the moisture begins to show at the top of the soil, then cover loosely and set in a warm place near the stovepipe. Watch the box that the soil does not become dry and as soon as the first plant appears move to a sunny window.—[W. F. Heath.

PROPAGATING THE ROSE.

THE first matter for attention is the wood from which the cuttings are to be made. It must neither be too hard nor too soft. To be sure of getting it at about the right stage, make up the cuttings from the flower shoots or stalks at the terminus of which the flower is borne, just at the time the flower naturally wilts and the petals fall. It is not necessary at all in making the cuttings to have an eye, or joint, it might be called, at the end of the cuttings which enters the sand, as is often supposed.

Make the cuttings about two and one-half inches in length, using a sharp knife, and in cutting let the stroke be slightly slanting. The ends of the cutting should be cut clean and smooth, and not mashed or bruised in any way. Let several leaves remain on each cutting, but trim off the tips of the outer leaves. Now procure a saucer or pan of some sort deep enough to hold about two inches of sand. After putting in the sand to a depth of about two inches, water heavily until it is thoroughly soaked. With a knife make several cuts one and one-fourth inches deep across the sand, and in these incisions insert the cuttings, pinching the sand about the base of each cutting as it is put in. When the pan is filled with the cuttings about an inch apart, or perhaps a little more, set the pan in full sunlight, there to remain every day during the rooting process. The only operation necessary each day while rooting is to keep the sand thoroughly saturated with water. Neglect this one day and the chances are that the whole lot will be spoiled.—Woman's Home Companion.

PRUNUS PISSARDI.

IS *Prunus Pissardi* short lived? This is a question recently called to my attention, and while my experience leads me to answer the interrogation in the affirmative, I sincerely hope that I am mistaken. However, I have become quite skeptical as to the value of this much admired tree or shrub, but I hope that these remarks may elicit some facts from other parts of the country which may be of value to us here.

The trees with which I gained this experience were planted somewhat over ten years ago, and out of a group of a half dozen or more only one sickly specimen survives. The others died in the past two years. I do not think that the soil or situation can have anything to do with it, for in that respect I should consider them rather favorably located in comparison to the surrounding country. The trees are to be found in Mt. Olive Cemetery, situated on the eastern slope of a ridge which once constituted the beach of the lake.

The tree which has survived is bleeding considerably and cracks badly along the main trunk, the effect of which is noticeable in the dead top. From its appearance this specimen must have once enjoyed splendid health.

Is it our erratic western climate which is unfriendly? *Prunus Pissardi* is probably a variety of *Prunus cerasifera* and is also known under the name *Prunus cerasifera* var. *atro-purpurea*. It was, I believe, introduced by Mr. Pissard, head gardener to the Shah of Persia; its home is Ispahan, Persia.—Gardening.

FLORAL HINTS.

A SMALL GREENHOUSE.—A small greenhouse may be constructed sixteen or twenty feet long and eleven feet wide, with benches three and a half feet wide at each side, a walk through the centre. Let the house stand north-east and south-west, and cover with a comb roof, with hinged ventilators at either side, so that ventilation can be secured from the calm side of the house. If the walk is sunk in the ground the eaves need not be more than two and a half feet above the surface, requiring less heat. Use a coal oil heater, with pipe running aro und beneath the bench, to distribute the heat. A house of this kind requires but little care, and will accommodate many plants

FOR WINTER-BLOOMING.—Now is the time to get your plants for winter-blooming. Get small plants of Mrs. Hill Geranium, Lopesia rosea, Agathæa cœlestis, Crassula cordata, Abutilon Mesopotamicum, Strobilanthes anisophyllus, Begonia semperflorens, Begonia Angel's Wing. Primula obconica, Drooping Lantana, Plumbago coccinea, Mesembryanthemum grandiflorum and Peristrophe angustifolia variegata. Start in three-inch pots, and shift as the plants grow till they occupy five-inch or six-inch pots, encouraging growth rather than flowers. Then in the fall you will have fine large plants, all ready for doing good service in the window-garden during winter. Most of the failures to have flowers in winter comes from not starting in time, or getting plants that are not adapted for winter-blooming. This note should therefore prove a timely hint to those who are anxious to succeed with winter flowers.

THE TUBEROUS BEGONIA.—One of the most satisfactory pot plants for summer culture that I know of is the Tuberous Begonia. It deserves every word of praise it has received or may yet receive. Besides its handsome, thrifty foliage it produces a brilliant display of gorgeously beautiful blossoms from June till November, thus making a truly charming plant, the delight, admiration and envy of all beholders. Some varieties have immense drooping blossoms, others more stiff and erect ones, but all are comparatively beautiful in their bright, glowing colors. The yellow variety will be a revelation to those who have never seen it

Plant the Tuberous Begonia any time from March till June, putting one bulb in a four-inch pot. For soil use a good, porous, compost, enriched with manure and leaf-mould, and see that the drainage is of the best. Do not cover the bulb entirely over, but leave the concave end in view. Set the plant in the coolest most even-temperatured place in the yard, on the north side of some building if possible, where it will not be injured by fierce rain and wind storms, and see that its supply of moisture is never low. Do not, however, keep it sopping wet, as the bulb might decay. Treated in this manner it will begin to bloom in a very short time, and bear blossoms until well into the fall, then it prepares for its annual rest. At this stage the foliage grows brown and withered, and no more buds appear. Then the plant should be gradually dried off in its dish, and put into some dark, frost-proof room to spend the winter. When growth starts in the spring repot, using fresh, new soil. The bulb will be good for several years if it receives good treatment.

The Tuberous Begonia may be bedded out in the open ground, and will make a striking display, provided it is

planted in a rather shady place and receives a proper supply of moisture. The single varieties do better in the border than the double ones, but either kind will prove unexcelled as a pot plant.

The *Gloxinia* is the Tuberous Begonia's only rival, but, inasmuch as it is not so free-flowering as the Begonia it has not so many admirers. However, a well grown specimen in full bloom is something to be proud of.—*Parks' Floral Guide.*

LICE ON PLANTS. — Lousy plants should be laid on their sides in a sink and the foliage wet with tea made by steeping tobacco stems in water. The decoction should not be very strong. Repeat when necessary. Whale oil soapsuds may be used for the same purpose. Dissolve a piece of soap as big as your thumb in a gallon of water thoroughly. If the plants are in a conservatory or greenhouse, by all means fumigate with the tobacco stems. A moderate amount of smoke every other day until the enemy is routed will not injure the plants; then fumigate regularly twice a week.

ORNITHOGALUM ARABICUM. — The Arabian Star of Bethlehem is without a rival for cultivation in the window garden or greenhouse, on account of the ease with which it can be grown, and the great length of time the flowers remain perfect when properly grown and cared for. The bulbs can be potted at any time from September to January, and should be given a compost of two-thirds turfy loam and one-third well-decayed manure, well mixed. Use pots proportionate to the size of the bulb (a four-inch or five-inch pot), and in planting set the bulbs just below the surface of the soil, so that they will be entirely covered. Water thoroughly, and place in a dark, cool cellar to make root. Then they may be removed to a light, sunny situation, where a temperature of 50 to 60 degrees is maintained, watering freely, and giving as much fresh air as is possible.—*Parks' Floral Guide.*

SHIRLEY POPPIES.—We shall ever owe a debt of gratitude to the Rev. W. Wilks for the glowing beauty of Shirly Poppies with their lovely white borders and splashings without the black spots.

They are so fair and bright, laughing in the morning sunshine, bowing so sweetly to the storm, growing without care. I always carry the seed with me and scatter beside the way, any and everywhere I think they are needed. Thin them, if they come up too thickly, and the flowers will be of finer quality, but not so abundant.

We all owe a double duty to mankind now such varieties of flowers are so abundant and so cheap. I buy flower seeds for gifts for little ones instead of sweet-meats, and they are all delighted with their posy-beds.—M. A. HOSKINS.

Our Affiliated Societies.

GRIMSBY.—On Friday evening the 12th of May, the Society at Grimsby had their annual meeting for the distribution or plants to the members.

Mr. A. Cole the Grimsby florist, made a fine display of plants in bloom, besides a fine collection of urns and hanging baskets, full of ornamental plants. The Grimsby Band occupied the platform and gave a fine programme of instrumental music. There was a full house and great interest was taken in the roll call of members, as each came forward for his collection of plants.

A beautiful May wedding took place here, on the 11th inst., at the house of the Secretary of the Ontario Association The house at Maplehurst was beautifully decorated for the occasion with evergreens, peach, crab apple, and double cherry blossoms, Japan quince, roses and carnations. The work was done by five young lady friends of the the bride and their work was well worthy of notice in connection with our Grimsby Society. Miss M. F. Woolverton, now Mrs. Mode, will make her home in Yarmouth, N S.

LINDSAY.—TREATMENT OF HOUSE PLANTS. The council chamber presented a charming and æsthetic appearance on Thursday night, April 20th., when about 100 people ranged themselves in front of a long bank of blooms to hear Messrs. Maxsom and Beall discuss matters pertaining to the care of fruit and flowers. The magnificent specimens with which Mr. Maxom illustrated his remarks were at once charming to see and helpful to a comprehension of the points discussed. Maxom's remarks ran somewhat as follows :

MISTAKES ABOUT WILD PLANTS.

Unless one is a close discerner he is apt to get mistaken ideas about the way to treat plants from watching them in their wild condition. For example : ferns grow in swamps, and one can easily imagine he should keep his tame ferns in very wet soil but that is not the case. No ferns want much water. The wild plant grows in the swamp but on soil that is covered with water perhaps for a short time but not for long and is of such a nature that it dries out very quickly. Even calla lilies cannot be grown in water at home. They do live in water out-doors but it is running water and pure. When in-doors in stagnant water they die for the water becomes foul. These are only two examples of how one may be misled by wild plants unless he is a close observer.

THE PROPER SOIL FOR POTS.

Black muck alone is not a good thing to pot plants in. In the first place you cannot get it sweet and clean unless you expose it to the light and air for two years. Taken directly into the house it soon smells very foul. The leaf-mold found in the hardwood bush is one of the very best things for lightening up the soil for plants. In England they have men go about the parks and collect all the leaves. These are thrown in between stone wall or some such place and left for a couple of years when they can be sifted. Half a bushel of soil, one peck of manure and a peck of the mould make a splendid mixture to put plants in.

ABOUT FLOWER POTS.

Do not put a young plant into a large pot. It is better to have the roots come out to the edge than have so much soil that it sours and kills the plant. A three inch pot is large enough to begin with for most plants. Then move them into one an inch larger and so on an inch at a time.

HOW TO PUT PLANTS INTO THE POTS.

When you have the proper soil and the proper pot put a little dry grass into the bottom and then put in the plant and punch the soil down firmly around it with a wooden paddle. Do this thoroughly for if any cavities remain the water will all run into them and sour there while the rest of the soil will be parched. And if the soil is loosely put in it will be too open and the water will run through it and do the plant little good.

HOW TO GET THEM OUT.

Many people run a knife around between the soil and the pot when they want to take the plant out. There is great danger of cutting the delicate roots that way. If the plant has been properly potted it will slip out freely if turned upside down over the fingers. The pot may be gently tapped if necessary.

FLOWERS NEED LIGHT.

MR. Maxsom spoke very pointedly about keeping plants in the dark. He said there was only one plant that will live in the dark. Its name was such that it is no wonder it had to stay in-doors. Many ladies were said to be so particular about the sun fading their carpets that they let the darkness fade the flowers instead. He had seen many languishing plants that needed only more light. Plants do not like to be put into prison.

ABOUT WATERING PLANTS.

Continuing Mr. Maxsom spoke on the following strains: One of the chief points in the care of plants is the watering. It should be done with great care, too much or too little will kill your plant. There are two way of telling when a plant needs water, by the weight of the pot and by the sound when it is tapped. When it feels light or rings when tapped the soil is dry. A damp soil is heavy, the pot has a dull sound when struck. Water should be poured on slowly until it runs down into the saucer. If a plant is real dry it may need to be watered two or three times in succession before it is well soaked. The carpet is often an enemy to the plants in this matter as well as in that of the sunlight. Many a house-keeper fails to put enough water on their plants that are kept in doors for fear of the carpet being soiled. It is a question between having the carpet and your flowers injured. It is well to take the plants to a sink where you can water them freely. Some flowers are ruined for that season if allowed to get once thoroughly dry. The maidenhair ferns is an example. The rubber plant will stand a good deal of drought.

WASH THE PLANTS.

It is important to wash plants occasionally. Take them to the sink and with a fine sponge bathe the leaves. They are refreshed by a bath as well as a human being. Be careful, though, not to dry them in a draft or low temperature for they are very sensitive to chills. A little soap in the water will do no harm. Tobacco smoke is the best remedy for a green fly. Take a large paper bag; put the plant into it and close the top. Then make a small hole through which to insert the stem of a lighted pipe. Get a smoker to blow the smoke from the pipe into the bag. That avoids all heat, which is injurious to the plant. When the bag is full of smoke stick a bit of paper over the hole and the fly will be killed.

POTATOES FOR PROFIT.

AS the tendency of potatoes after a few years of cultivation is to deteriorate, it becomes necessary to have new varieties to take their places. Most of the kinds cultivated twenty years ago are now superseded by varieties of recent introduction. In the last half-dozen years we have had a number of new varieties of superior excellence in all of the qualities of first-class table potatoes. As most desirable of late introductions may be named the New Queen, Early Essex, Carman No. 1, Carman No. 3, Banner, Somerset, and Enormous.

From the experience of the past few years it seems indispensable to have our crop of potatoes planted very early in the season, so as to have them well advanced in growth to escape the ravages of the potato beetle, and the blight which usually appears in the latter part of July or during August, and is apt to be followed by more or less rotting of the potatoes. Two important advantages in the early crop are that the price of potatoes is much higher than later in the season, and the land can be used for a second crop of celery or late cabbages with but little cost of cultivation, thus adding quite an amount to the yearly profits.

Another method I have practised very satisfactorily is to plant about the fifteenth of June every third row with squashes ten feet apart in the row. The potatoes being harvested early, the squashes will occupy the land later, and produce about as large a yield as if no other crop had preceded them.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

WESTERN NEW YORK horticulturists have secured the right to ship car-load lots of pears and quinces in boxes and kegs as fourth-class, and in lesser quantities, second-class. This means a reduction over the old rates of 10 cents per 100 pounds in car-load lots, and five cents on smaller shipments.

SHIPPERS COUNT.—Mr. Britton complained at the Rochester meeting, of the unfairness on the part of railway companies in refusing to take the responsibility of the count of carloads of fruit packages. He says:

"We have, not one, but dozens of instances where we load, and take our certificates of weights from the weigher, or our account of barrels, and the bill of lading is marked "shippers count or tally," except where we ship from the larger cities.

When the car reaches its destination the purchaser, reports it to be so many hundred-weight short; they again furnish the city scale weights and we are obliged to pay for 2000 lbs and often 3000 lbs, or five and ten barrels of apples short at $3 per barrel, for which we are unable to collect. Is it asking too much, under the circumstances, that every railroad should know what it receives and delivers."

THE MANCHESTER SHIP CANAL is likely to open up the interior of England to our fruit trade so that many fruit merchants who have been in the habit of buying from the great fruit brokers of Liverpool, may now receive consignments direct from Canadian growers at reasonable freight rates. Goods are being delivered at Manchester at about the former Liverpool rates. Mr. R. Dawson Harling, of Toronto, is the agent for this canal.

THE BISMARCK is a new and valuable apple from New Zealand. It is said to be remarkable for its early bearing, even grafts one or two years old carrying fruit.

The fruit is large, yellow and red, and considered very handsome; the flesh is tender and mild subacid.

APPLE CANKER. Mr. V. Paddock writes that the form of apple canker which effects the trees in England is distinct from that prevalent in America. The former is caused by a species of *Nectria*, the latter has been prevalent in America for years, but has only recently been identified. The data given on page 163 are not sufficient to decide finally upon the disease affecting our subscriber's trees.

A NEW WRINKLE IN SPRAYING is reported from California. Some old apple trees of Santa Barbara were badly scale infested; and were sprayed with pure kerosene, and immediately after with a weak solution of caustic soda. The oil routed the scale, and the caustic soda then neutralized its power to injure the tree.

This may be a useful hint for farther experiment. The usual solution of soda is 2 ounces to 40 gallons of water.

NEW SEEDLING APPLES. Mr. J. P. Williams of Bloomfield sends us 12 samples of a fine looking winter apple, which he says is a seedling of the old Wax apple or Belmont. He says it much resembles the parent only it is a better keeper, hardier and later coming to maturity, is thoroughly hardy and yields very few culls; the tree is an immense cropper, and begins bearing at a very early age. The apple is certainly remarkably fine in appearance, with a beautiful bright red cheek, and should sell wonderfully well in an old country market.

Mr. Williams sends us several other seedlings as (1) seedling of Ben Davis, (2) Seedling of Greening, quite hardy, (3) Seedlings of the Spitzenburg.

OUR PLANT DISTRIBUTION.—One of the most difficult undertakings in hand is to send out four or five thousand premiums and give each member satisfaction. During the last two or three years unusual care has been taken by the Nursery from whom they are purchased to give us the very finest stock and to send it out in prime condition; but who can control Jack Frost, and last winter the old ice King has gripped our temperate clime with an icy hand, and winter-killed many trees and shrubs always counted perfectly hardy. When dug and shipped the premium plants appeared perfectly sound, the young buds were even pushing out; but since mailing them we have word from some of our members that their rose and their elæagnus plants were apparently drying up. This must be the effects of the rigorous winter, and is something so beyond our control, that we do not see how we can replace them; we can only ask the indulgence of our subscribers and hope that such a misfortune will not again occur.

THE VALUE OF A MULCH of snow, or of some cover crop in winter time, is plainly evident since the severe winter just passed. The protracted cold weather in February without snow protection, reached down deeper than usual and destroyed many peach trees, even in the milder parts of Ontario. Wherever the ground was protected by a cover crop the trees have survived, and are coming out as healthy as usual.

NOW that we are on the war path against fraudulent fruit packing, evidence of the gigantic extent of the evil constantly accumulates. Only to-day (May 22nd) we are in receipt of the following lines from Mr. George Maun, Leeds, England. He says:—"I bought 50 barrels Canadian apples last year

through a commission man, but a more disgraceful lot it would be hard to find. They professed to be xxx, but as a fact they had been sent from Canada I think without marks, and these were put on in lead pencil, I think in England; but such goods are enough to ruin any trade. Only one barrel seemed to have been properly marked, and had on one x. The apples were the veriest refuse of the orchard—particularly small—extremely covered with black spots, and positively *not worth the carriage paid for them.* This kind of dealing will keep the *Canadian apple trade* back, and I am sorry to say it is not a solitary instance in my own experience."

These examples are alarming, and from the positive necessity of having a detective at our wharves to watch such thieves and put a stop to their villainous practices.

SHALL WE CONTINUE THE PLANT DISTRIBUTION.—If our readers would be favorable to it, we would advocate giving up this plant distribution, and spending the money otherwise for the general good. It would mean a saving of $500 more or less, which would largely increase the size of the Journal, and thus give each member a volume of much increased value, more, we are sure, to his interest than the plant we now send him. Would our readers show their wishes on this point by voting pro or con on postcards, addressed to the Secretary? It would be a guide to the Executive Committee.

RASPBERRY PULP.—Mr. W. Boulter, chairman of our committee on the export of raspberry pulps has been over in Great Britian interviewing jam makers there and getting all the information he can for our benefit. He encloses a letter from Messrs Anderson and Coltman, London England. They say: "Last year, when the first fruit came in, it was generally expected that the crop would be a plentiful one, and prices ranged at first from £18 to £20 per ton (2,240 lbs), and it was not until something like a week that it was discovered that the quantities would be kept short, and prices immediately began rising by leaps and bounds, and very soon reached £40 and afterwards £50 per ton.

. . . . . .

With regard to the fruit itself, what you sent us last year we consider very satisfactory both in regard to color and in regard to substance, but we think that the berry might be picked when not quite so ripe, as it is a point to have the fruit as comparatively whole as possible, and with as little liquor as possible. Of course it is understood that no additional water should be added, and that the fruit must be pure unadulterated fruit, with the stalks taken out, and no sugar or any other substance in it; and nothing should be used in the way of a preservative, either salycilic or boracic acid, or anything else of this nature.

Question Drawer.

Growing Chrysanthemums.

1094. Sir,—Would you please give me some hints for growing chrysanthemums.

If our correspondent will turn up our report for 1897 he will find an excellent article by Prof. Hutt, on this subject. The following brief hints are given by a Canadian florist:—

During the past decade, the chrysanthemum has been and still is the most popular of all fall blooming plants, and is properly called "Queen of Autumn." Coming into bloom as soon as the dahlia is over, its flowers last throughout November and early December, if the plant is properly protected from freezing. The culture is very simple, as they grow freely in any rich, well-drained soil whether of a clayey or sandy nature. Young plants should be secured in May or June and planted if possible, on the east or south side of a fence or building, that they may easily be protected from cold, freezing winds in autumn. The plants should be cut back early in July, and again each two or three weeks afterward, until early in August, when the shoots should be allowed to grow. By this time each plant should present a well branched and stocky appearance. The plants must of course, receive thorough cultivation throughout the summer, and the surface of the ground never allowed to get hard or baked.

If these few directions are observed, a magnificent display of chrysanthemums will be had in the fall after all other flowers have ceased blooming.

The chrysanthemum is one of the finest fall blooming plants for the house. Young plants secured in May or June should be lifted into larger pots from time to time, until five to seven inch pots are reached, according as the grower desires. If cut back, as above instructed, large stocky plants can be had in the house in full bloom throughout the autumn months. Few realize that amateurs can grow large blooms of exhibition quality; yet this can be done by growing plants to a single stem and removing all but the terminal bud. In growing chrysanthemums in pots, they can be placed in frames or among other flowers, but the most satisfactory way is to plunge the pots to the rim in the soil, thus causing less danger of drying out, and requiring much less attention. They must, of course, be watered during dry times, and the plants should be turned immediaiely before watering, at least once in two weeks, to prevent rooting through the pots under the soil.

The principal enemy to chrysanthemum culture is the black fly, which is easily kept in check by frequent applications of tobacco dust or spraying with a solution made by boiling tobacco stems in water. This solution should be about the color of strong tea.

Even the tender varieties of chrysanthemums can be kept over with good results, by covering the plants outside with pine branches (or other materia that will not harbor mice) to the depth of one foot to prevent frequent freezing and thawing. Chrysanthemum plants grown in pots can be placed in the cellar after they are through bloomingl and by not watering, except when absolutely necessary to prevent shriveling, will be in excellent condition for planting the following spring.

Apples for Home Use and Market.

1095. Sir,—I see in the May number two questions asked and answered, but along

the line I would advise. The first is *No. 1081 what variety of apples to set*; your advice would surely mislead a great many as 42 summer and fall apples are altogether too great a percentage in 100 trees. The Wealthy that you advise setting 20 trees of has not proved to be a winter apple in this country but early fall, contrary to what we bought and sold trees for. It is a Minnesota production and keeps fairly well there but all that have them bearing here will bear me out in this and in many cases with much regret that it is a poor keeper. In place of these, if you want a red apple, set Baldwins, if not too far north as the trees are not as hardy as some others and don't be afraid to set the R. I. Greening as it is hardy, a fair annual bearer, and has good quality, and that always tells when you get strong competition. Then again unless E. J. P. is close to a good market ten Duchess Oldenbnrg is far in excess of what any family could use; two trees of these would keep E. J. P. and grandchildren agoing as long as they will last, as they ripen before the fall apples, and right here I might say don't miss setting two yellow Transparent in place of a Early Harvest as it is one of the best bearers and beats everything for pie and sauce.

Question 1082—Spy on Talman Sweet.

In answer to E. J. P., I have had sixteen years experience and observation in grafting Spy on Tolman Sweet trees and can recommend it. There is no hardier stock than the Tolman among our old varieties which is a very important point, and the growth is similar to the Spy and it certainly makes the Spy more inclined to annual bearing and much younger. It makes the fruit somewhat lighter in color as it takes some of the sweetness and color from the original tree. Greening and Baldwin do well on Talman but I think Kings are too fast a grower for top-grafting on them.

G. H. CAUGHILL, *Nurseryman, Alymer.*

We appreciate all that our friend Mr. Caughell writes, and ten years ago we would have replied in a similar strain; indeed, now, we would do so, for an inquirer who is not conveniently situated for an export business.

But for the up-to-date fruit grower, who can ship to the seaport in a cold storage car, our advice is all right. The summer and fall apples, such as Astracan, Duchess, Gravenstein, Alexander, Blenheim and Wealthy, have proved for two years past most profitable varieties for export. Of course, they were in cold storage almost from the time they were harvested until the time they appeared on the consumer's table in Great Britain. From Mr. Pearson's letter we did not take it that he wanted winter varieties *only* for shipping, if earlier varieties were desirable.

Mr. Caughell recommends the Baldwin and the Greening. These are the varieties we always recommended, as the best commercial varieties, until the experience of the last few years has shaken our confidence in them. In the Niagara district, at least, the Baldwin has been unproductive for ten or twelve years past, with the exception of 1896, when we had a surplus, and a glut in the apple market

If the Baldwin would yield such crops as it did of old, it would still be the very best variety to plant for profit.

The Greening is another fine apple and probably should have a prominent place in our list. It is usually a prodigious bearer each alternate year, but it has a poor color, and has recently become subject to apple scab. No doubt Bordeaux will control this fungus and we may wisely plant Greening again for profit.

For farmers who cannot take time to harvest and pack fancy summer and fall apples for shipping, we would give quite a different list for market, perhaps the following: Blenheim, Wealthy, Greening, Baldwin, Cranberry and Ontario. The two first are late fall varieties, but can be shipped away about October 1st, along with the winter varieties.

A Fine Seedling Dessert Apple.

1096. SIR,—I send you to-day (May 4th) by sample post, a seedling apple. I have fruited it for years, and sold it in Owen Sound the middle of June in as good condition as they are to-day. They are by all odds the best keeper of any variety I have.

JAS. W. GRADY, *Anna, Ont.*

This is a very nice apple, of medium size, oblong, of a beautiful golden yellow color, and of excellent quality as a table apple. Probably a little on the small side for a profitable commercial apple.

AN ESSEX COUNTY PEACH FARM, LEAMINGTON, ONT.

THE
CANADIAN HORTICULTURIST.

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PEACH GROWING IN ONTARIO.

ONLY thirty or forty years ago it was thought almost foolish to plant the peach in Ontario. A few natural seedlings were growing about Grimsby, but no one seemed to think that an orchard of good varieties would ever live long enough to give paying returns. About the year 1860, Mr. A. M. Smith and Mr. C. E. Woolverton, then partners in the Grimsby nursery, planted the first peach orchard of any extent in the Niagara district, devoting about five acres of the farm now known as Maplehurst, to such varieties as Early Purple, Early Crawford, Late Crawford, Royal George, Morris White, Old Mixon and Smock.

Then was the time to make money out of peach growing, it being quite an ordinary thing to sell the fruit at $3 and $4 per bushel.

No wonder that orchards were planted on all sides at Grimsby, St. Catharines, Niagara and Winona, and the rage for planting did not cease until yellows came upon the trees and gluts in the market reduced the prices.

For some time it was thought that the Niagara district was the only favored one for peach growing until some enterprising fruit growers at Leamington and Kingsville found that the soil and climate of that region was also adapted for peach growing. Soon the planting fever seized that whole district, and thousands of acres of peaches were planted. In 1889, W. W. Hilborn, resigned his position as horticulturist at Ottawa and at Leamington with the view of engaging in peach culture. About this time Mr. Hilborn was engaged to act as experimenter in peaches, and over 150 varieties were placed in his care for trial. In 1892 Messrs. Morris, Stone and Wellington of Welland, Ontario, became interested in Essex as a peach section, and purchased nearly one hundred acres of land and planted the whole to peach trees, placing them under the general oversight of W. W. Hilborn.

Our frontispiece shows this farm as it

appeared in 1898, during fruiting season. In each of the lower corners, says the Farmers' Advocate, in which this cut first appeared, will be seen a single tree loaded with choice peaches; on the right hand is a Barnard tree; on the left, one of the Golden Drop variety. The latter was taken from a tree in a block containing 300 of this sort; they gave a yield of about 2,000 baskets, which sold at an average of forty-five cents per twelve-quart basket: nine hundred dollars for this their first crop. These trees have been planted six years. The lower central picture is a view down the center of the orchard; at the top are two views looking diagonally across either side of the farm. The upper central figure is the residence of Mr. Hilborn, located on the opposite side of the road and directly in front of the central or leading road through the farm. It is built on a triangular piece of land containing three acres.

The orchard contains over 12,000 trees, not half of which bore a crop of fruit this season; nearly all will be old enough to produce a crop next year. The yield, of course, is not so great on these young trees, the average being about two to three baskets per tree. The quantity produced by a peach tree increases rapidly with age. This season thirty baskets were gathered from a single tree nine years planted. It was a sight worth going many miles to see the Brigdens, Fitzgeralds, Barnards, Crosbys, Longhursts, Golden Drops, Smocks, and many other kinds laden with their choice fruit. The finest grades sold for sixty cents to one dollar per basket. Although less than half of the orchard produced a crop, the net returns after paying all expenses was, we understand, between $2,000 and $3,000.

The trees are planted fifteen by eighteen feet apart, in blocks containing twenty four rows of twenty trees in a row. These blocks are located on either side of the central drive, which is thirty feet in width. Between each two blocks a crossroad is left twenty-five feet wide for convenience in gathering the fruit, etc. The trees are pruned every spring. The first two or three years after planting the trimming consists in thinning out the superfluous branches and shortening in the longest limbs. After the trees come into bearing, thinning out is all that is required in the way of pruning. Every spring cultivation begins quite early or when growth starts. The land between the trees is plowed to a depth of three or four inches. This is done with a regular farm plow, as near to the trees as possible. A side draft is attached, which permits plowing quite close to them. An implement called a "grape hoe" is used to turn the soil that cannot be reached with the common plow. Cultivation is continued at frequent intervals, say once a week, up to the middle or last of July, with harrow and cultivator. It is then discontinued in order that the wood and fruit buds will ripen up properly to withstand the cold of winter. When the trees are young, crimson clover or rye is sown among them at last time of cultivating. This is plowed under quite early the following spring. The fruit usually begins to ripen about July 15th to 25th. One variety continues to succeed another until about October 10th to 25th, thus give a continuous supply for three months. The fruit is carefully picked into baskets by men and boys. All of the fruit is not in condition to pick at once. The trees have usually to be gone over three or four times at intervals of two or three days, in order that all may be gathered at the proper degree of ripeness, each time taking only what is sufficiently ripe for market. As fast

as the fruit is picked it is carted to the packing-house; here it is turned out into trays containing canvas bottoms to prevent bruising. It is then sorted carefully into the different grades as required for market. Four and eight-quart baskets are used largely in which to pack the first early fruit; later, twelve-quart and bushel baskets are used as the fruit becomes more plentiful.

Unfortunately for Essex peach growers the three weeks of unusual severe weather in February 1899, without any snow to protect the roots, was fatal to the peach orchards in that county, and not only there but also did immense damage to peach orchards even in the Niagara district. Mr. Hilborn wrote (see page 198) that one man in Essex had lost 2100 bearing trees, and the damage seemed universal except where the roots where protected by some cover crop About Hamilton the peach growers are checkered with dead trees and from many quarters we hear a similar tale of evil.

Michigan peach orchards have suffered very severely, from which State large quantities of peaches are annually shipped into Canadian markets. It's an ill wind that blaws naebody good," so perhaps those growers whose orchards have escaped injury will this year make up for the unprofitable seasons which they have recently passed through.

THE KIEFFER PEAR.

I HAVE been a close observer of the Kieffer and have had opportunity to test it from most of our Missouri soils, beside those of many other States and am free to say that I have never sampled one that could be called good that did not grow on such land as we call poor, or where the subsoil is red, such as is found in most of the Ozark's regions.

If the Kieffer pear is planted on such soil and the trees are not allowed to bear too full, but the fruit is properly thinned at the proper time, and picked when not quite ripe, and each specimen wrapped in paper and packed in barrels, or bushel boxes and stored in a cellar with a temperature of not more than 50 degrees, that will lower a little later to 40 degrees, and allowed to remain there until towards the holidays, and then submitted to a temperature of about 60 degrees for a few days, they will be ripe, will colored, sweet and juicy, and almost as good as a Bartlett.

Now if these pears grown under favorable conditions are so much improved by this treatment, of course those grown under other conditions would be improved in proportion under like treatment, besides the advantage of going on to the market at a time when they are wanted, and would sell for a good price. Unless something of this kind is adopted, we may some day wish we had not planted so many Kieffer. On the other hand, if even a part of the growers adopt this or some similar plan, we will find our market supplied with luscious, juicy Kieffer pears in midwinter and selling at a profit to the grower. Will those who are growing this pear take the hint?—J. C. Evans, Mo.

FIG. 1611.—MR. WM. WARNOCK, of Goderich, returning from the fair with his exhibit of squash (1898.)

HOW TO GROW BIG SQUASHES.

SIR, I send you picture of three big squashes which grew in Goderich last year and exhibited at our fall show. This picture was taken when coming from the fair, with myself standing at the back; they weigh 388½, 355½, and 344 lbs. each. I thought it might be a suitable souvenir of the productiveness of our great province to be placed in your office where visitors could see it.

WM. WARNOCK.

Mr. Wm. Warnock of Goderich has certainly made himself famous by the marvellous sample of Rennie's Mammoth Squash, which he exhibited at the Columbian Exposition in 1893. It was the wonder of our visitors, whom we always took around to see the big squash that beat the world. California came nearly up to us but failed by a few inches of the size of our Ontario giant, which weighed 365 lbs.

We have often thought that some of our readers might be interested in monstrosities in the vegetable line and would gladly welcome the secret of Mr. Warnock's wonderful success, and since he freely sends us the following directions for growing big squashes, we willingly give them a prominent place.

"My land is made in good condition, being heavily manured every year, it is of gravelly formation with about sixteen inches of clay loam on top. A three hundred pound squash can be grown on any part of it by the following method of cultivation: For each hill I intend to plant, about the first of April I take two good wheelbarrow loads of hen manure, and mix with four barrows of good soil taken from some other part of the lot, this is mixed a second time the middle of April. The first of May I add four barrows of well-rotted manure and mix thoroughly, then about the eighteenth of May make hills and plant, dig out a space seven feet in diameter and fourteen inches deep, fill in my compost mixing, and with it some of the best earth which was thrown out, and when finished, the hill will be about ten feet in diameter and six inches higher in the centre than the surrounding level. Then plant the seed. Hills want to be about twenty feet apart; work the ground well until the plants commence to run. When about three feet long I mulch the ground all over for twenty feet in diameter around each hill with horse manure three inches deep, and stake the vines down with sticks to keep the wind from rolling them about, so that they may root at every joint. It is of great advantage to keep the vine from fruiting as long as possible, by pruning all fruit bloom off until about the last week in July; this will give time enough to mature a three hundred pound squash by the first of October, for there must be a big vine to produce a big squash. I practice fertilizing a few of the first bloom that come, when I think the vine is strong enough to grow a good specimen, by cutting off some of the fresh false bloom, trim the corolla or flower leaf off, and rub the stamen in around the fresh fruit bloom. This is necessary when fruit bloom opens on a morning that is unfavorable for bees to do their work, and it assures the setting of the specimens just where you want them. It also gives extra vigor to the growth of fruit to be well pollenized. When the first perfect specimens have set well, say four or five inches in diameter, cut all other fruit and blossoms off, and nip the ends off the vines and all bloom that shows twice a week, so that the vine is not exhausted with the great quantity of false bloom that would naturally come. Now while the great growth of the squash is going on I use

liquid manure twice a week along three or four of the principal vines of each hill, often six pails to the hill if it is in a dry time. Great care must be taken to give plenty of water; for instance, in 1893 when I grew the great specimen that was the largest on exhibition at the World's Fair, it was a dry time with us at Goderich, and having the advantage of the town water service, I sprayed each hill twice a week through August and the first two weeks in September, drenching the ground each time.

I expect all have heard of feeding squash and pumpkin by injecting milk or other stuff. This is a ridiculous silly humbug. I have practiced several methods along this line when I was younger, but it only makes me ashamed to confess it, and I am now quite satisfied the only thing that will increase the size of the fruit comes out of the vine, and the vine must get its support from the natural roots."

THE EXPORT OF CANADIAN GRAPES.

THE overproduction of fruit in Ontario is most evident in fruits not exportable. For apples and pears of a No. 1 quality there seems to be an unlimited demand in Europe, and we are confident that if our best varieties of grapes could be landed in first-class condition, and once introduced among the middle classes, they too would find an unlimited sale. As it now is, our own markets are glutted with them, and unless the Northwest opens up a large trade in them, we shall soon have to dig out one half our vineyards.

Realizing this condition of affairs, the Dominion Minister of Agriculture has tried for two years experimental shipments of grapes, without success; for it has been found that the English people will not take our Concords, and no more of that class will be sent forward. We are however hopeful that our Rogers' grapes may meet with more favor, and our Executive Committee has submitted the following resolution to the various local societies for endorsation, so that the Minister of Agriculture may be assured of the support of the public in his further efforts to open up English markets to our tender fruits.

To the Honorable Minister of Agriculture:

Whereas, the grape is one of the most important fruit products in Canada, and very large acreages are devoted to its production, and

Whereas, of late years the yield has been so abundant that our home markets are glutted, and the price too low to leave any profit to the grower, and

Whereas, certain varieties of Canadian grapes have superior flavor and excellent carrying qualities, as, for example, the Rogers' Hybrids, and

Wheras we are persuaded that English consumers need only to become acquainted with the excellence of such grapes to become fond of them,

Therefore, Resolved, that we humbly pray that you will export in large quantities our best Rogers' grapes to the best English markets; that they be put up in neat and attractive packages, and sent out in costermonger carts in such a city as Manchester, until the trade reaches a firm basis.

Already we are receiving official notices from the various local societies, saying that they fully endorse the above resolution.

EXPORT OF TENDER APPLES.

ON the 26th of May Prof. Robertson and Mr. Grindley met the shippers at Grimsby to consider plans for farther experiment in shipping tender fruits. Peaches, tomatoes and grapes have been so unsatisfactory thus far that it was not proposed to receive any of them from shippers on guarantee, but the Government might buy some of these fruits for purposes of experiment.

The Dairy Commissioner said the Government would push the export of pears and early apples in particular during the coming season, because there seemed to be good ground for expecting that Canada would be able to take a first place with these fruits in the British market. There would therefore be a large quantity of these sent forward, providing the crop was of fine quality. There would seem to be a good opening for fine, high colored Astracan, Duchess, Alexander and Gravenstein apples, among the summer and fall apples, if forwarded in small packages in cold storage.

It was advised that apple growers in each province make specialties of a few of the kinds of apples that succeed and not to have too many varieties. Thus Nova Scotia has made a name for her Gravensteins.

Among the winter varieties he mentioned such kinds as the King, Greening, Cranberry, Pippin, Golden Russet, and Spy, as varieties which were becoming known as Ontario apples, and were in demand abroad.

Prof. Robertson proposed trying some shipments of Ontario winter apples in the Ontario barrel, which is about 28½ inches from croe to croe, 17½ inch head, and 65 inches around the bilge, and some in the Nova Scotia apple barrel which has straight staves, and is smaller, but which appears to reach Great Britain with fewer slacks. He thinks the bilge tends to flatten in the Ontario barrels when piled three or four tiers high and thus render the apples loose in the interior. He had looked over many account sales for the purpose of comparison and had found in the Nova sales not more than 10 per cent slacks reported, while in Ontario sales a much larger proportion was not unusual. Of 14,000 barrels of Ontario apples for example, that were reported, only 5,000 were tight. He thought possibly the explanation was in the difference of the shape of the barrels. Of course it might possibly be due to difference in temperature of storage; but if so, that would henceforth be remedied, for in response to the resolutions sent in by our Association, the Minister of Agriculture has made provision for better storage of fruit in trans-atlantic steamers, and agents of the Government would be sent to port towns to insist upon better conditions.

The Committee discussed with Prof. Robertson the importance of persevering with the experimental shipment of grapes. So far, it is true, these have been a failure, but the shipments have been on too small a scale. Besides, they have been of too many varieties. Concords, Wordens and Niagara are worthless for export and large quantities of these varieties were previously forwarded to the disgust of the English consumers, with both their condition and their flavor.

We would advise shipping only the Roger's grapes, such as 4, 9, 15, 22 and 44; grapes of the highest quality, of fine appearance and excellent carrying qualities. These should

be packed in fancy packages and sent over in large quantities. Let them be peddled on the streets of the great cities by the costermongers, and thus introduced among the middle classes, until a demand has been created; then there will be no trouble in finding agents who will gladly receive them from us.

FIG. 1612.—A SEEDLING PLUM.

A SEEDLING PLUM.

A blue plum in my garden here is remarkable for its hardiness and productiveness. It most closely resembles the variety "Prince Englebert." The tree is said to have been planted about 25 years ago, and to be the only one of a number purchased at the same time which has lived. The trunk divides in three parts almost at the ground, where it has a diameter of about 15 inches. It is absolutely hardy, and yields enormously about every second year. In 1898, I gathered from it 440 pounds of fruit. At least 60 pounds more fell owing to the wind, or with branches which could not be propped. The size of the fruit is medium to large, and the quality good. The variety seems a desirable one to propagate, especially in the East; and I shall be glad to give scions for budding, at the proper time, to all who may desire them. Fig. 1612 shows a terminal cluster of the fruit.

F. R. L.

Ottawa.

LAYERING THE GRAPE.

LAYERING is the simplest, surest and easiest method of increasing the grape, and is the best way to grow them where but few vines are wanted. There are two kinds of layers, called spring and summer layers, from the season at which they are made.

Summer layers are made in the summer, generally the last of July, from a branch of the same season's growth. They are likely to be weak for several years, and do not make as good plants as the spring layers. In making them, the wood should be slit for an inch or so near the buds that are covered. Bury about one foot of the cane four inches deep in the ground and it will be rooted by late autumn, when it should be separated and be treated as a young vine; and it is generally best to get them well started in a garden or nursery before planting in the vineyard permanently.

Spring layers may be made by laying down any cane early in the spring. It will root in one season. By fall it will have made a good growth of roots, when it may be cut from the main cane, and if strong it may be divided into two plants. This form of layer is illustrated

FIG. 1613.—A ROOTED LAYER.

FIG. 1614.—THE ROOTED LAYER SEPARATED, MAKING TWO PLANTS.

in Fig. 1613 and 1614. By a little different treatment of the spring layer a vine may be grown from each bud on the layered cane. For this purpose some thrifty cane should be selected in autumn, pruned of its laterals, and buried. In the apring it should be uncovered and only one shoot permitted to grow from each joint. After the new growth has started about six inches from each bud the whole cane should be layered about four inches deep, handling it carefully so as not to break the new growth.

Fig. 1615 shows such a layer after it has rooted. It is a good plan to cover it not more than three inches at first, and to fill up the trench as the shoots grow. If covered four inches deep at once the young growth will sometimes rot, though this seldom happens, and some skilful growers fill the trench full at once. In the autumn, roots will be found growing from each joint, and these

FIG. 1615.—A ROOTED LAYER, EACH BUD MAKING A NEW PLANT.

may be cut apart and treated as recommended for weak vines grown from cuttings. If this method of propagation is to be used to some considerable extent vines should be grown especially for the purpose. It is not a good plan to use fruiting vines for layering to any great extent, though it may be safely done in a small way.—S. B. Green.

STANDARD SIZES OF FRUIT PACKAGES.

A BILL introduced by Mr. Penny to define the sizes of small-fruit packages was given its first reading in the House of Commons on April 13th. The object is to arrive at a standard measure of quart, pint and half-pint baskets, used in buying and selling strawberries, raspberries, blackberries, currants, and other small fruits. The bill demands that the standard quart when even full shall contain sixty-seven cubic inches. The standard quart basket shall be 5¼ inches on each side at the top, and 4⅜ inches on each side at the bottom, and 2⅞ inches deep. The standard pint basket shall be oblong, and the inside measurement at the top shall be 5¼ inches by 3⅜ inches, and at the bottom 4¾ inches by 2½ inches, and it shall be 2½ inches deep. The dimensions of half-pint baskets are also defined as 3⅜ inches on each side at the top, and 2¾ inches on each side at the bottom, by 1¾ inches deep, all inside measurements The Bill also enacts that makers of baskets of less size or capacity, shall mark the word "short" on the outside in letters not less than one-half inch in height. The penalty for selling "short" baskets of fruit not so marked will, upon summary conviction, be a fine of not less than five dollars and not more than twenty-five dollars. The Act is not to come into force until May 1st, 1900.

In order to arrive at the probable effect of such an Act, we interviewed a number of fruit dealers who claim that such a provision, if it can be properly carried out, will do away with much dissatisfaction to both dealers and consumers, as many of the so-called twelve-quart baskets contain not more than from ten to eleven quarts, and smaller packages in the same proportion. While the dealers interviewed could see considerable difficulty in having such a regulation carried out, they were of opinion that it is just what is needed, especially with Canadian fruit. The greatest difficulty, however, was observed in the way such regulations would effect foreign fruit, such as strawberries, of which we get great quantities during the early season, as the cases from the various States differ widely in form if not size. It is claimed that there is little to complain of in the matter of shortage in the American cases—in fact, far less than in Canadian—but as the Bill demands cases of certain dimensions, an effort to compel the use of a regular form of box in place of those of a different form now in use for the shipment of fruit from foreign countries, and which are already large enough, would be to little purpose and well-nigh impossible of enforcement without seriously interfering with the trade.—*Farmers' Advocate.*

ORIGIN OF THE CATAWBA.—It is a fact that the Catawba grape was found wild in the woods of Buncombe county, N.C., about ten miles southeast of Asheville. In 1807 Senator Davey, who lived on the Catawba river, transplanted some of the vines to his farm, and some time between that year and 1816 brought cuttings of his vines to Washington and gave them to some friends in Maryland. The Scholl vine undoubtedly came from these cuttings. American horticulturists are agreed in the opinion that the Catawba is purely a native grape, without the slightest admixture from European kinds.—N Y. Trade Bul.

PICKING AND MARKETING PEARS.

I THINK I may safely say that the ripening of pears by growers has received but little attention until very recently, the purchaser invariably attending to that whenever they were sold in market for eating. In the past, I have annually supplied market men with hundreds of boxes at a shipment, that they might ripen for that purpose. They would store them away in some convenient place, and frequently cull them over, taking out the ripe ones, until they were all disposed of.

Very often such purchases did not prove very profitable, though sold at a much higher price, from the simple fact that the place in which they were stored was not at all suitable for the purpose; the principal loss, which was by decay, being very great.

Many years back, finding my crops greatly increasing and the price declining, particularly for green stock, caused me to give the subject of ripening the fruit before shipping my most serious attention. That season, I selected fruit from all the varieties that I was growing (some fifteen or more), and put them in various place in my house (which is of brick) from celler to garret and also on a shady porch, and carefully noted the results.

The following spring, I erected houses especially for the purpose. (Described house here. Size, platform, how used, etc.)

The fruit to be ripened is carefully picked and brought to the ripening room, where it is at once assorted; all inferior, ripe, specked and bruised are carefully culled out, the others being placed in baskets (7-8 peach baskets) and piled as high as a man can reach and kept there until they begin to ripen which will be from 10 to 15 days, if the fruit is properly picked from the trees. By that time, any variety that you are at work on should be gathered and put in the house. It is during this period of picking that the market is generally overstocked and prices low. As soon as they begin to ripen, commence on the first you put in, to cull them over, taking out the ripe ones to ship, putting back the green ones for a future culling, until finally they are all ripe and disposed of.

You can work, say, on the Howell and Duchess for at least three weeks after you finish picking, before they are all ripe enough to ship. Before you have gotten through with these varieties, the Kiefer is ready to begin on, and when you have finished these, the Lawrence will follow, and it generally takes until about the first or fifth of December to close out our pear crop.

As to varieties to ripen in house, I will say, that all varieties are not adapted to this system; in fact many varieties cannot be handled in this way, as they will ripen much better on the tree, and can be held, if desirable, much longer in that way. This is particularly true of the Bartlett; when housed, the Bartletts all ripen nearly at the same time, but fortunately, it is a variety, and one of the leading and most largely grown, that sells well to canners and shippers when green, and they prefer them in that way.—Report Md. H. Soc.

THINNING FRUIT.

THIS is another part of the New Fruit Culture which is absolutely essential to success in plums, apples, pears and peaches. The absurd method of allowing each tree to overload itself each alternate year in its natural effort to produce as many seeds as possible, regardless of the size of the fruit must come to a stop, and the fruit grower who means to succeed must aim at size of fruit and not at the number of seeds. Even for evaporating, buyers will not take apples, for example, less than 2 inches n diameter, and for export it is proposed that we make the minimum for No. 1 grade 2¼ inches. Van Deman writes very sensibly on this subject in Green's Fruit Grower, he says:—

There are several reasons why thinning pays. The most important one is, that it causes the fruit to be large and well flavored instead of small and poorly flavored. It is scarcely worth while arguing about the difference in value between large and small fruits of the same variety, either for market or home use; and I would not do so if there were not so many who continue to grow so much of the latter kind. One big Baldwin, Jonathan or any kind of apple is worth more than twice as much as two of half the size. In actual net profit it is worth fully four times as much whether eaten or sold. The same is true of pears, peaches, plums and all other fruits. When there is a glut in the markets it often occurs that small and inferior fruits will not sell for enough to repay the cost of gathering and transportation.

Now if the trees that bore these small half or less than half-developed fruits had been stripped of half or three-quarters of them when they were about the size of marbles the remaining ones would have grown to weigh nearly as much as all of them and would have been worth much more.

There have been several experiments made to obtain positive evidence as to the profit or loss of thinning fruit and what proportion should be removed. The first extensive experiments of this kind, of which I have knowledge, were made in California some fifteen years ago by Mr. A. T. Hatch, and were made principally upon peaches and pears. I heard him state that he tried leaving the fruits different distances apart; some being just as nature had placed them, some three, four, five and six inches apart and so on up to a foot. He said that he had finally decided that for these two fruits about six inches gave the best results. The open hand of the workman was given them as a measure by which to space them. In New York, Connecticut, Michigan and Georgia there have been several such tests with apples, peaches, pears and plums. Only a few persons have tried the plan upon grapes, except in house culture. In every case it has paid. A few have thinned big trees of Baldwin, Esopus and other apples, carefully charging all expense of labor and crediting the trees with the fruit sold. This having been done in comparison with adjoining trees that were not thinned, and of which records were kept of fruit sold, it was found that there was a very decided balance in favor of thinning. If this will pay on a few trees it will pay on many. It is purely a matter of business judgment as whether it should be done or left undone; just as a farmer thins his corn to two or three stalks to the hill and has big ears, or lets five or six stalks stand to make fod-

der and nubbins. A few of the most progressive fruit growers have passed the experimental stage of the business and practice thinning their growing fruit with as much certainty of profitable return as they do tillage or any other part of the business.

One large peach grower in New York showed me an orchard in which he had expended about $80 in thinning in 1897, with an increase of over $2,000. This he knew from comparing it with another orchard which was not thinned. Another of the leading fruit growers of New York has repeatedly stated in my hearing and written me that he has been experimenting for many years with some large trees of Esopus and since he began thinning and spraying he has not failed once to have a fair crop, and the apples have always been extra large, well colored and richly flavored.—

FRUIT INTERESTS IN PRINCE EDWARD ISLAND.

In *Hansard* of April 26th, we read the following:

Mr. Martin asked:

Does the Government propose to initiate, as advocated by Professor Robertson, any scheme for experimental spraying of fruit trees?

If so, to what extent is it proposed to extend it this coming summer?

What sections are to be chosen for these experiments?

Is it proposed to extend them to all the provinces?

Is it intended that these experiments are to be made without any charge to orchardists?

If not, what charge is to be made?

The Minister of Agriculture (Mr. Fisher). Professor Robertson has not advocated any scheme for spraying fruit trees; but it is proposed to co-operate with the provincial government of Prince Edward Island and the Prince Edward Island Fruit Growers' Association in preparing for some trial shipments of fruit by the spraying of fruit trees, and in the packing and shipping of apples in the season of 1899.

Mr. Martin is a member of parliament for Queens (East) Prince Edward Island, where recently, thanks to a well organized Fruit Growers' Association, the production of apples especially has received a wonderful impetus. Everybody now feels compelled to walk in the ways of the Association and hence the keen interest of the politician who scents the necessity of co-operation, in a matter of vital importance to his province, afar.

When Hon. Senator Ferguson resigned the presidency of the F. G. A. of P. E. I., owing to enforced absence from home at a season of the year when the president of such a live organization would need to be engaged in active work, he advised, in view of a resolution passed at the general meeting of the Association to inaugurate a service on top-grafting for the province, the placing of this whole matter of orchard advancement into the hands of Professor Robertson, Dairy Commissioner for Canada, of whose judgment and superior intelligence on all matters pertaining to Agriculture, nobody, at this late day, has the slightest doubt. Down in the island province Professor Robertson had taught them how to make cheese—had actually built the first cheese factory but a few years ago and now that fair province is, according to Governor Howlan's happy expression, "A million acre dairy farm." The whole island is dotted over with cheese and butter factories, and their numbers will go on increasing, for all the conditions for making the best possible cheese at the least possible expense obtain there. The people there admire Professor Robertson and trust in him implicitly. It was

not wonderful therefore, that at Senator Ferguson's suggestion the Fruit Growers' Association, backed by the local Government, asked the Minister of Agriculture to place on the Professor's already well burdened shoulders, the development of fruit culture in the "Garden Province." Luckily the kindly feelings which Islanders entertain for Professor Robertson are reciprocated to the full, and hence he took to the new work with that earnestness and industry—which are characteristic of the man and can only enter where such occupations are a labor of love. "Prince Edward Island can grow excellent fruit," said Professor Roberson;" "we must only fit up the old orchards, plant out judiciously the new, teach the people to graft, spray, and prune the trees they have and pack and ship properly the fruit, and, as with the cheese factories, so with the orcharding, this interest will go ahead with leaps and bounds."

The Minister of Agriculture convinced that the Federal Government ought to do something for Prince Edward Island on the lines suggested by Professor Robertson and backed by all her representatives in the House and Senate, began to cast about for an efficient orchardist. There was little time to waste as grafting time was on, so luckily a well recommended Nova Scotian, named George Kinsman, was secured to take charge of this important work. Mr. Kinsman was summoned to Ottawa for instructions, and the most improved outfit left the Capital on the 10th of May and is now hard at work in Prince Edward Island, where the Fruit Growers' Association had already a programme of operations cut and dried. He will have several young men with him, it is to be hoped, and as the Island province is small, compromising only three counties, he will be able to get a goodly number of old orchards top-grafted, and give valuable instruction in spraying at once. The value of spraying will be demonstrated on the lines followed in Ontario and everything done to initiate the keen Islanders into scientific methods of orcharding without delay. The work will be invaluable and Prince Edward Island has already great reason to thank heaven for a live Fruit Growers' Association.

P. E. BURKE,

Alberton, P.E.I.

TOMATO PULP WANTED IN ENGLAND.

ENQUIRIES have been received in Canada from a house in England for large quantities of tomato pulp.

The pulp must be put up in sealed tins, and must be free from acids or preservatives of any kind.

Any information sent to this office will be forwarded to destination.

This may open up new possibilities for the tomato industry. To what extent can only be ascertained by actual experiment. It is to be hoped that persons will be found sufficiently enterprising to interest themselves in a practical way in the matter.

Mr. J. S. Larke, the Canadian Trade Commissioner in Australia, in his last report to the Department of Trade and Commerce, pointed out that there was a maker of sauce in Australia who wanted tomato pulp, for which he was willing to pay $50 per ton. "At that figure," says Mr. Larke, "British Columbia ought to be able to supply the article, though the freight might make it impossible to bring it from Ontario." —The Canadian Grocer.

AFRICAN APPLES VERSUS CANADIAN.

THE Cape of Good Hope bids fair to be a strong competitor with Canada in the English fruit market.

The *Fruit Grower*, London, Eng., of May 4th, says:

The arrival of new apples from the Cape has produced a perfect sensation in the fruit trade. The samples are very pretty and fine and are sure to create an immediate demand. In the early months of the year the public has to depend principally upon apples from California, Canada, and the Eastern States of America, and these fruits after January, through having been kept in cold storage, lose their freshness and aroma, and are thus in no way comparable to the new, fresh fruit. It seems then, if devoloped, that future Cape apple shipments will completely revolutionise the trade, for with the exception of the Australasian samples, there are no new apples obtainable at this time of the year, which have not been rendered insipid through months of cold storage. It is believed that the opening up of new markets, and the successional arrival of new apples from various outside centres, will, in time, render cold storage unnecessary, compelling apple growers at least to market their stocks when the fruits are new, or, at least, fairly fresh. By this development the public will undoubtedly be the gainers, for all fruit is at its best when marketed in fresh condition. We learn that if the present shipments prove a success the Cape fruit shippers will send over a plentiful supply next year. The fruit will be put up in a very artistic manner, on the lines adopted by the Paris packers of choice new fruits. The retail fruiterers, particularly those at the West End, will welcome these fruits, as they will come in at a time when fresh apples are much appreciated.

GRADING AND INSPECTION OF APPLES.

THE Executive Committee of the Ontario Fruit Growers' Association has prepared a resolution asking for some provisions of the grading and inspection of apples, and has submitted the same to the local affiliated societies in Ontario, and also to the various provincial societies, for their support. The following is the resolution:

To the Honorable Minister of Agriculture:

Whereas it is well known that fraudulent packing of apples for export is a very prevalent evil which is yearly bringing discredit upon the name of our Dominion, and ruining the English market for our Canndian apples, and

Whereas, as a matter of fact, Canadian apples are the finest in the world, and will bring the very highest prices in the English markets if confidence in the packing can be sustained.

Therefore, Resolved, that this Society do humbly pray that you will provide some remedy for the same.

We would suggest that certain marks or numbers be adopted to indicate certain grades and sizes of apples, and that it be made a misdemeanor for any one to stamp these marks or numbers upon the outside of his packages unless the contents of the packages are in accordance therewith; that the name and address of the owner and shipper be always required on the inside or outside of closed packages intended for export; and that an inspector be appointed with power to open packages, and, if found fraudulent to have the grade marks removed and to expose the offender; and we further suggest that the terms used for grading be "No. 1" and "A. No. 1," "No. 1" to include sound apples reasonably free from worm holes, scabs or other blemishes, and to be not less than 2¼ inches in diameter, and the grade "A. No. 1" the same with apples not less than 2¾ inches in diameter.

PYRAMID PEAR TREES.

THE Pyramid or cone form of training pear trees, where they stand alone or in a small garden, is a very ornamental one and at the same time calculated to secure a good crop. A strong pyramid, well pruned, symmetrical and thriving, is certainly a handsome object. Like the dwarf or fan form the pyramid requires more or less annual pruning. One must of course begin with a young tree that has branches to the gronnd. Do not expect too vigorous a growth; from five to seven main branches a year are all that should be allowed. When laying out the branches for the next year's growth, it is as well to prune close to the bud which is to continue the growth, leaving a small spur attached to tie the growing shoot to in order that it may grow in the proper direction. Or it might do to cut the branches three or four inches above the bud, removing all buds on it, and tie the growing shoots to this spur, which may afterwards be taken off. It is a mistake to prune strong-growing varieties too much, and it is equally wrong to allow the lateral branches to grow too long. Therefore it will be best in pruning to use a judicious moderation and keep the tree properly balanced. A well proportioned pyramid should have a diameter about two-thirds of its height. If a tree of the proper age fails to bear, it may, if well proportioned, be left unpruned for two or three years. A circular incision of the bark about one-half inch wide at the base and kept open may be tried, or even root-pruning resorted to, to bring it into bearing. The illustrations give a good general idea of a pyramid pear tree after winter pruning, also one in fruit —Farm and Home.

FIG. 1616.—PYRAMIDAL PRUNING.

EDWARD A. ROGERS.—The introduction of Rogers' hybrid grapes marked a new era in American grape culture. The death of the originator, Mr. Edward A. Rogers, of Salem, Mass., has just been annonnced. This occurred at Peabody, Mass., on the 30th March. It is remarkable, considering the grand results of Mr. Rogers' experiments, that more work in the same line has not been attempted. All he did was to plant under a hot-bed frame a vine of the European race, and one of the American Fox grapes. They then hybridized, naturally, as one might say, as the results proved. If the path marked out by Mr. Rogers had been followed further, valuable results might have rewarded the explorer.—*Mechans' Monthly.*

THE FOREST TENT CATERPILLAR.

SIR,—Our last year's visitors, the caterpillars, are on the rampage again, more plenty than even last year. I am in hopes that this may be their last year with us. They have nearly cleaned the Poplar of the fresh young leaves already. So far I have kept my orchard clean by persistent spraying every few days; but when they get big and begin to travel round, will keep them back by band of tarred cotton round the tree trunk. Paris green is after they get big,—at least I have not found it of any use. I have observed that the bud worm is here this spring; this is the first time it has made its appearance to be noticed. We are a little behind you good people in old Ontario, but are getting educated whether we will or no, and this kind of compulsory education we'll have to get, and I hope may profit by what you older people have already learned.

CHAS. YOUNG,
Richard's Landing, Algoma.

Mr. W. M. Munson, of the Maine Experiment Station, writes:

The Forest tent caterpillar is defoliating many orchards in Maine the present season. The eggs are laid upon the twigs in the same way as those of the common tent caterpillar, but the insects, instead of spinning a web for a resting place, gather in great masses upon the sides of the trees at moulting time, and they often migrate for considerable distances. In many cases during the past year, they swept over entire orchards in spite of everything that could be done. Spraying in the manner already indicated, if begun when the insect first appears, will usually prove effective, but if delayed till the caterpillars are half grown, it is of no avail. Many large orchardists have been approximately successful in holding the pests in check when they appeared in force, by putting on rubber gloves and crushing as many as possible of the insects. Many of those not killed would spin a web, and drop to the ground when disturbed, and a band of paper, smeared with equal parts of lard and sulphur, tacked about the trunk, prevents their return to the tree. The Forest caterpillar is at present doing much injury to the shade trees in the cities and towns of Maine, as well as to the orchards.

We have received numerous letters from subscribers living in northern parts of Ontario complaining of the ravages of caterpillars, saying they were so abundant as to become a great plague, sometimes collecting so thickly on the track as to be the means of stopping the trains; and in the orchards they were so numerous as to threaten their wholesale destruction. Some complain that even Paris green is ineffective. It is quite evident that reference is made to the Forest and not the Apple tree Tent Caterpillar. The latter is comparatively easy of control by spraying, but the former increases so enormously at times in the forests that immense swarms often travel across roads or along fences in search of food, and woe to the garden or orchard which comes in their way. The foliage may be well poisoned with Paris green, but what if the first thousand or two perish, the endless hosts following will soon take their places, and continue their ravages until July, when they usually go into cocoons and wait for another season's attack. When we were on St. Joseph's Island last July we noticed the evergreen trees white with loads of the whitish yellow cocoons like crops of some peculiar fruit; even the fences were dotted with them and every other convenient lodging place.

We are not surprised to hear they have now appeared in enormous numbers, and that all usual remedies fail against such an army. Mr. Young's band of tarred cotton around the trunks of the trees is a fine plan, because one can easily control those worms hatching out from eggs deposited on the apple trees, provided fresh worms from the forest do not crawl up the trees to take their places. Dr. Saunders says on this subject: "During the day they are so constantly on the move, that a young tree thoroughly cleansed from them in the morning may be crowded again before evening. To avoid the necessity of constant watchfulness, strips of cotton batting, three or four inches wide, should be tied around the tree about half way up the trunk. These bands

should be tied tightly in the middle. Each caterpillar is furnished with four pairs of fleshy prolegs, which are fringed with small horny hooks, and on its trying to pass over the cotton these hooks get so entangled in the fibres, that its further progress becomes very difficult and is seldom persisted in."

Fortunately, Dame Nature has the best remedy, and when an insect becomes very abundant, she usually provides a parasite to keep it in check; she has several ready for this tent caterpillar, so that in a year or two we may expect to see them cleared out without our assistance.

THE SCALE ACT.

A VERY important meeting of fruit growers was held at Grimsby on June 16th, under the auspices of the Ontario Fruit Growers' Association, to consider the present delay on the part of the Department of Agriculture carrying out the provisions of the San Jose Scale Act, which was passed at the request of our Ontario Fruit Growers two years ago.

It seems that there are only three or four sections in the province, and those near the border, in which the scale has been found. The whole of the infested sections put together would not exceed twenty miles square, and the Act if vigorously enforced will soon clear out the whole thing. Two delegations from the sections have called on the Minister of Agriculture and asked that the Act be suspended so as to save their orchards, and in response the Department has temporarily suspended the Act and appointed a Commission to look into the whole question, consisting of Dr. Mills, of the O. A. C., Guelph; John Dearness, of London, and W. H. Bunting, of St. Catharines.

Mr. Geo. E. Fisher, of Burlington, the Inspector, was present at the meeting on invitation and gave much valuable information, in answer to questions. He had become convinced that the pest was a much more serious enemy than he had first supposed, but since it was so far confined in Ontario to two or three small sections of two or three square miles each, it could still be easily routed. The young lice began to leave the mother scale about the end of June, and hence the importance of prompt action. He had found no scale at Leamington, and at Kingsville one square mile would cover the infested territory. He had found no forest trees affected. As to fumigation as a means of destroying the pest, he believed it was impracticable, because the canvas tents were not gas proof, and it was not possible to apply them to trees over ten or twelve feet high.

Mr. D. J. McKinnon, Grimsby, said he was greatly surprised that the Government should delay action in a matter so important to the farmers of Ontario, at such a critical moment; when delay might mean their ruin. The Commission might decide whether the Act should continue in force for another year, but in the meantime it should be pushed forward with all vigor, in accordance with the wish of the people expressed two years ago.

Mr. A. H. Pettit said he was much pleased when the Hon. John Dryden had the Scale Act passed, and he much regretted the present hesitation in carrying out its provisions. After considerable discussion a committee consisting of M. Pettit, Winona, D. J. McKinnon

and A. H. Pettit, Grimsby, brought in the following resolution, which was unanimously carried.

To the Honorable Minister of Agriculture for Ontario.—

Whereas, the minute San Jose scale is the most serious enemy that has ever threatened the fruit grower,

Whereas, the Government has passed an Act which is calculated to save the fruit orchards of Ontario from being infested with this scale,

Whereas, certain persons, whose orchards were found affected and who were ordered to have them destroyed in their own and the public interest, have waited upon the Minister of Agriculture asking that the law be not enforced,

Therefore, Resolved, that we consider the Act to be all important in the interests of the farmers and fruit growers of Ontario, because it is the only sure way of saving our orchards from ultimate destruction by this terrible pest, and that we consider the interests of the many of much greater importance than the interests of the few,

We, therefore, express our deep regret that the operation of the law has been suspended at this season of the year when the scale is beginning to spread and when a fortnight's delay may cause irreparable damage, and we earnestly beseech you to enforce the law vigorously and without delay, allowing the findings of the Commission, lately appointed by you, to govern your action with regard to future years.

And we further pray that you consider the interests of those growers whose orchards have had to be destroyed, by so increasing the amount of compensation that they will have no just reason for complaint.

KEEPING GRAPES.

DRYNESS is essential to the successful preservation of grapes. Moisture causes the growth of mould, which at once ruins the fruit. With the present moist storage rooms some good absorbent such as sawdust must protect the fruit. Better success with grapes would be attained in a room cooled by dry, cold air currents than by the present systems of refrigeration. Such storage rooms are already being planned in some warehouses. Grapes do not require a low temperature, 38° to 40° being as low as necessary, provided the temperature is steady and the proper conditions regarding dryness are preserved.

As may be observed from the records, the grapes held up in good condition from six to eight weeks. The results of other seasons agree in fixing this as the limit for grapes grown in our section. The length of time varies considerably with the different varieties. Delaware, Agawam, Brighton, Duchess, Centennial, Concord, Worden and Hays, ranking in the order named, have kept the best. It is noticeable that the red grapes head the list, the first three being red. The fourth and fifth of the list are white, while the black grapes, represented by Concord and Worden, rank in the sixth and seventh places. The varieties that kept best are those that rank as early grapes. However, no extremely late varieties were tried. Had they been tried the results might be different. The climate in which the grapes grow modifies their keeping qualities. A grape maturing slowly in a climate of moderately cool, regular temperature, will keep longer than one whose ripening is hastened by excessive heat.—Kansas, Bul. 84.

ORCHARD TILLAGE.

WE have frequently pointed out in these pages the necessity of thorough cultivation of the orchard. The notion was prevalent twenty years ago that an apple or a pear orchard would thrive in grass, and many growers planted large orchards on their hardest land, thinking thus to reap harvests without the tough labor of ploughing and digging. It has taken all these years to prove conclusively the mistake of such a notion; each year of barren trees or of scarcity of fruit was thought exceptional until at last the hateful truth has dawned upon the planter that his ground and his trees were both wasting his time and his money, and that no high grade fruit would ever be produced without the same hard work and thorough cultivation that was necessary for garden crop.

Added to the crop failure is the change in markets. Twenty years ago apples of almost any grade would sell at $2.50 per barrel, but now only A 1 apples will bring such a price, and second grades are not salable unless to the evaporator or the cider mill. Evidently then we must most completely change our methods to suit the changed conditions, and tillage is the first and most important consideration. Bailey arranges the benefits of tillage under three heads thus:

1. Tillage improves the physical condition of the land, (a) by fining the soil, (b) by increasing the depth of the soil, (c) by warming and drying the soil in the spring, (d) by reducing the extreme of temperature and moisture.

2. Tillage may save moisture, (e) by increasing the water-holding capacity of the soil, (f) by checking evaporation.

3. Tillage may augment chemical activities, (g) by aiding in setting free plant food, (h) by promoting nitrification, (i) hastening the decomposition of animal matter, (j) by extending these agencies (g h i) to greater depths of soil.

Bulletin 40, Kansas Experiment Station, is so much in point that we quote it at length as follows:

There is no longer any question as to whether the orchards should be cultivated. Experience everywhere shows that cultivated orchards live longer, bear better and are more profitable than uncultivated orchards. Many of the experiment stations of the best fruit producing states have tried uncultivated orchards beside those that were cultivated and have collected opinions of the most observant fruitgrowers of their sections, and the considerate verdict in almost every case is that cultivation is necessary for healthy trees and first-class fruit. The principal orchardists of the state have expressed themselves on orchard cultivation. Out of 272 reports made to the Secretary of the State Horticultural Society, 130 advocate thorough cultivation till bearing time. and 130 urge continuous cultivation as long as it is possible to enter between the rows with horse and implement. Most of those advocating cultivation till bearing time only, live in the lower Kansas river district where the soil is very rich, deep and moist, and will produce fine crops of clover. The general practice in this district is to cultivate well till the trees are in full bearing and then seed to clover. West of Manhattan, clover does not succeed. Even if it should succeed it would not be profitable to sow it from the fact that all the moisture that falls in this region is required by the fruit trees, and any crop whatsoever simply robs them of the moisture they should have. For this

region, then, clean and steady cultivation ought to be the rule for at least that part of the year including the dry season.

However, bare soil soon loses its humus and becomes infertile. This must be prevented. Here is one way of preventing it. Plow the orchard in the spring, cultivate both ways and keep all weeds down till September 1, at which time the soil will be in fine condition for a seed bed. Sow rye at the rate of two bushels per acre. This will cover the ground well before winter, and therefore protect the ground from blowing or hard freezing during the winter. Let the rye stand till knee high in the spring, then turn under and proceed with clean cultivation through the summer.

Deep cultivation is not essential nor advisable, but the cultivation should be frequent. Go over the ground after every rain, if possible, with the disk or the harrow to break the crust. This will give a mulch of loose earth two inches deep, which will greatly retard evaporation and therefore conserve the moisture for the use of the trees. This system of management has the following advantages :

1. It provides the soil with a good supply of organic matter (humus) which will keep it in good physical condition as well as prevent washing and blowing.

2. It provides a cover for the ground during winter, thus preventing the soil from blowing ; it catches the snow, thereby moderating the temperature of the soil.

3. It provides for clean cultivation during the summer, the time when all the moisture that falls should be conserved for the use of the trees.

4. By ceasing cultivation and introducing a crop September 1, the trees are helped to ripen off their wood and prepare for winter.

These advantages are worthy of the consideration of the orchardist. The plan has worked well in the orchards of this department, and it will without doubt operate as successfully in many other regions of the state.

It is a matter of grave doubt as to whether there is anything gained in the long run by cropping the land that has been planted to fruit trees. Of course it pays while the crops are being gathered, but does it pay to have the orchard come into bearing on soil reduced in fertility? Will not the orchard during its bearing period have need of all the food elements that the soil contained at the start? Will not the productiveness of the orchard be reduced in the same proportion as the elements of fertility have been removed by previous crops? This will certainly be the case unless the removed elements are restored by means of fertilizers. Ground that supports an apple orchard for thirty successive years has no food to spare for corn crops. Either cling to the orchard and forego the corn crop or else depend upon the corn and abandon the orchard.

It is now the latter part of May. The soil is moist, and good growing conditions prevail all over the state. It is nip and tuck between crop and weeds on every side. With the farmer in the garden or the cornfield, the weeds grow apace in the orchard and often predominate. Once in control they soon fully possess the situation ; and, as dry weather prevails later on, they will consume the water in the soil and leave none for the trees, which thereby starve for the time being. The only remedy is prevention. Do not allow the weeds to grow

THE LATE SEVERE WINTER.

I HAVE observed the tale of woe that has come from fruit growers from all the peach districts over the distruction of trees from the severe frosts of the past winter. I can readily lend my voice to that same sad tale. The past winter has been the most severe and destructive in this section of the county experienced for twenty-seven years. And it is only now that the extent of the damage done is showing itself. Many trees that came out in leaf in the spring are now dying away. All my Burbank plum trees succumbed; the Imperial gage, Munro and Abundance will not pull through this season. Two Dempsey pears and one Marguarite are quite killed while, strange to say, Bartletts are showing no signs of having suffered. I would have supposed that the Dempsey, being of Canadian origin, would have stood a lower temperature than the Bartlett or Duchess.

But it is with my roses that I have suffered the greatest loss. I am inviting nobody to see them this year; or rather see where they used to be. Out of 130 varieties I will have, maybe, 50 that will bloom this year. Quite a few varieties were totally killed, among them Margaret Dickson, Mad. Gabriel Luizet, Ulrich Brunner, La France, Victor Verdier and Meteor. Many others are starting again from the roots, but will not bloom this year, and indeed will never bloom again with me as I intend to reduce my collection to at least sixty varieties this season. One very peculiar thing this season is that not one of the moss varieties are blooming except the crested, though they are all vigorous in growth. All my roses were well covered with leaves, though there was very little snow over them at the time of the cold snap when the thermometer went down as low as 35 degrees below zero, a thing never known before here.

Among the small fruits the Hilborn black and Loudon red raspberries came through all right. The Gregg black and Schaffer purple were badly killed; the Cuthbert red and Golden Green were too much injured to give more than half a crop. Let us hope that such winters as the one we have just passed through and suffered from may be few, with many years between.

T. H. RACE

Mitchell. June 20th.

SUMMER CARE OF HOUSE PLANTS.—A very satisfactory shelter for house plants may be made by setting up four posts in a square, to which strips of lath or boards can be nailed about an inch apart. Make a roof of the same material, and put on in the same way as the strips on the sides, which should be in a sort of lattice. Such a shelter will admit all the air that is stirring and all the sunshine that the plants will need, and not prevent any one of them from getting the benefit of dews and showers, while it will break the force of strong winds.—*Ladies' Home Journal.*

Flower Garden and Lawn.

A "SPORT" GLADIOLUS.

FIG. 1617.—"SPORT GLADIOLUS."

THE gladiolus shewn in Fig. 1617 produced on the same stalk single, semi double and double blooms. The bulb was bought of Vilmorin, whose growers are the Souchet establishment at Fontainbleau, where the Gandavensis strain first reached its present excellence. The double blooms were produced at the base of the spike, the semi-double near the centre, and the single towards the end.

The variety, *Tamerlan*, was introduced in 1883. As it is slow to multiply, and of great merit, it has maintained a comparatively high price. The stalk is strong, and set with well arranged flowers of medium size. The upper divisions are dark red, framed with slate on the edges; the lower, deep reddish carmine, and creamy yellow. It is a superb variety, even when it does not sport in the direction of doubling. *Zampa* and *Multipliant* are varieties which frequently have double blooms, but *Tamerlan* has not been previously known by its originators to sport in this way. I may add, to avoid possible confusion, that there is a different *Tamerlan*, of the Nanceianus strain.

F. R. LATCHFORD.

Ottawa.

AN OFFICE WINDOW.

FIG. 1618.—VIEW OF OFFICE WINDOW.

THE above two photos are the office window of Mr. Walter T. Ross, Secy. Picton Horticultural Society, of Picton, Ont. One is taken from the outside, and the other from the inside The fruit is the Pomela or Grape Fruit; there are five on the tree, but only three show in the picture; it is like an orange, but not so sweet. They are now about the size of a Spy apple, and are not ripe yet. The plant in the tub is a pineapple, about one year and a half old, and should soon fruit. The bloom in top center is a *Melia floribunda* (China tree) and is very odd looking, no leaves or branches except at the top, and looks like a stick with large bunches of fragrant flowers at the top end. Several orchids are hanging at the side of the window. With this result of the garden in the Summer, and an office window in the Winter, is Canada appropriately called "Our Lady of the Snows."

FIG. 1619.—A WINDOW BOX.

SOMETHING ABOUT THE CYCLAMEN.

THE genus cyclamen, in Europe commonly called Sow-bread, from the fact that the acrid stems are greedily eaten by swine, is a near relative of the primrose. Beside the beautiful favorite flower of the window garden and greenhouse, the Persian species, through which it is, perhaps, known more widely than any other, the genus contains a quite lengthy list of hardy kinds not so widely disseminated. By English growers of fine Alpine plants these are much prized, and well they may be, for there is, as a whole, no more attractive group in the whole range than that comprised in this.

FIG. 1620.—CYCLAMEN HEDERÆFOLIUM.

The necessaries for success in open air culture are protection from dry, cutting winds, a rich, friable soil, good drainage, covering in the winter; still bearing in mind that because some species are hardy is no reason why they should thrive in exposed situations.

For planting in rockwork, not too high, in warm, shady borders, they are of much value, and a choice collection in full bloom is a sight not easily forgotten. The most luxuriant growth in their native haunts is noticeable among broken rocks, under the shade and friendly protection of low bushes and the hill corpses. While, in general, with high culture plants are improved in point of blooming and habit of growth

FIG. 1621.—CYCLAMEN NEAPOLITANUM.

from the original type, the conditions of growth are essentially the same as in the old form, and to this the cyclamen is no exception.

There are two general classes or divisions made, regulated as to time of flowering, viz.: the fall-blooming section, of which *C. Africanum*, *C. hederæfolium*, (ivy-leaved cyclamen,) *C. Neapolitanum* and *C. Pyrnaicum* are good representatives, and the spring flowering class, prominent among which are *C. Atkinsii C. Coum*, *C. repandum C. vernum*.

Though the growing of cyclamen in the open air may not be so desirable or practicable in this country as in the old world, we can expect them, nevertheless, to stand as much frost as the English

FIG.—1622.—CYCLAMÉN VERNUM.

Primrose; hence will survive with the same amount of winter protection.

With out door cultivation undesirable,

FIG. 1623 —CYCLAMEN COUM.

pot culture may be resorted to with success, providing the same period of rest be given as would be had if growing in open ground High culture and careful selection have brought the Persian cyclamen to a near state of perfection, nearly all the shades and colors known in the different species at the present day are to be found in the numerous varieties, as well as improved size of floret. Their culture is not difficult, the most important points being a light rich soil, plenty of sunlight and moisture during the growing season, and a cool place before starting into growth. Many plant in open ground in May, lift and pot in September for the winter.

Tolerably true reproduction from seeds can be counted upon if the plants are kept from cross fertilization when in flower, while to secure a good per centum in germinating sow as soon after gathering ss possible.

Contributors to flower-shows should do all in their power to promote the cyclamen to a more prominent place than it now occupies, for were its true merits more widely known, our windows during the fall, winter and early spring months would be more frequently seen enlivened by its presence. — Vick's Magazine.

PANSIES AND FERNS.

THIS generally favorite flower does best in a cool and somewhat shady spot. I have grown them in a large bed with a border of hardy ferns with great success. One can pick them up beside the way almost anywhere, and a good long bed of them on the east or west side of the house admits of many varieties, and water in a "dry-spell" is an aid to both sorts. The florist's fern, planted to grow shaded by larger ones, does finely, and the Maiden-hair is charming anywhere. I have transplanted them at all seasons, with good results. A bushel of black earth from the woods strewn over the bed is of great value, and all the leaves you can rake up in the fall tucked under and about them and held down by chip or stone is useful.

Often there is a shady corner of the veranda, that is greatly improved with an ivy, and ferns. We can utilize all space for the embellishment of our surroundings, if it be only a tumble-down sort of a place of small area. A good place to plunge pot ferns is such a spot.

M. A. HOSKINS.

Newport, Vermont.

PRIMULA STELLATA.

FIG. 1624.—INFLORESCENCE OF P. STELLATA.

PRIMULA STELLATA is another addition to our collection of primroses. It grows somewhat in the style of the Baby primrose, but the flowers are about three-quarters of an inch in diameter, and flower stalks are about twenty inches high, very full of bloom. The flowers are white, pink and purple.

Fraser says of it in American Gardening: "The culture is the same as for the Chinese primrose: Sow the seeds in March and when up keep near the light as they are liable to draw and be spindly, as the leaf stalks are not so strong as in the regular Chinese sorts. A six inch pot, well drained, is large enough to flower in; or, what is better, a six-inch fern pan. I have grown all my primulas in these pans of late years and find them much better than pots, as when the plants are full grown the leaves hide the sides altogether, making them nice for room decoration.

Plow deep!
Sow not thy precious seeds
Among the scarce uprooted weeds,
Or thou shalt weep
To find thy crops all choked and dead,
And nought but thorns and tares instead.
Then plow down deep,
The promise ringing in thy ears
That those who sow their seeds in tears
In joy shall reap.

—*A. G. Evans.*

STRIKING CUTTINGS.

We are too apt to select short cuttings for the best success. I have found those of sufficient length to bury two buds or even more, allowing about three to remain above the soil is best. The decay of the leaves that absorb moisture may be prevented by stirring, or by a porous soil. I failed in every attempt to root carnations and roses, until I tried this experiment, advised by some gardener along in the seventies. The water process does not give the satisfaction of this method. For geraniums almost any method works. They grow as easily as cabbages.

M. A. H.

AMATEUR FLORAL DECORATIONS.

FIG. 1625.—AMATEUR MANTEL DECORATION.

The professional florist has material and skill for decorations of a superior order, but because amateurs cannot equal professionals is no reason why we should not encourage the former. Indeed it is the general cultivation of taste in these matters which we most aim to develop, and we welcome every contribution in photography a writing which helps toward this end. The engraving shows one of three mantels decorated for a wedding by some young lady friends of a bridal pair at a recent wedding. The projecting canopy was of dwarf evergreen box, fastened on a wire frame above the mantel, and was interwoven with apple blossoms. The other trimmings are largely made up of double white cherry blossoms, apple bloom, white roses and white carnations. The Double White cherry is one of the prettiest ornamental trees of its season, every blossom as full as a rose and pure white.

THE ROCK GARDEN.

THE rock garden should never be near walls; never very near house; never, if possible, within view of formal surroundings of any kind. It should generally be in an open situation. No efforts should be spared to make all the surroundings, and every point visible from the rockwork, as graceful and natural as they can be made. The part of the gardens around the rock work should be picturesque, and, in any case, display a careless wildness resulting from the naturalization of beautiful hardy herbaceous plants, and the absence of formal walks, beds, etc. No tree should occur in or very near the rock garden; hence a site should not not be selected where it would be necessary to remove valuable or favorite specimens. The roots of trees would be almost sure to find their way into the masses of good soil provided for the choicer alpines, and thoroughly exhaust them. Besides, as the choicest alpine flowers are usually found on treeless and even bushless wastes, it is certainly wrong to place them under trees or in shaded positions.—*Gardening Illustrated.*

THE GERMAN IRISES.

FIG. 1626.—IRIS SIBERICA (left) IRIS GERMANICA (right).

THE German Irises, *Iris Germanica*, or *Fleur de Lis*, furnish us with some very useful and very hardy garden plants. They will cover a period of three weeks with their showy flowers The earliest varieties were showing open flowers May 25th and at present writing (June 7th) it certainly appears as if there will be quantities of good flowers yet to be cut June 15th. There are a host of named Germanica varieties, we suppose on account of them being easily handled from seed. Some of the varieties are certainly grand enough for any collection of hardy plants, but the seedlings show a great percent of poor flowers and unattractive colors. The collection at our nurseries numbers twenty varieties and comprises a great variety of colors and shows quite a lapse between the earliest and latest varieties. *Spectabilis*, a pure deep purple, and *Alba Odorata* pure white, are two of the earliest bloomers and the largest flowers. The former is the most striking garden plant in flower at the time. *Queen of the May* is a delicate reddish heliotrope shade, also one of the largest. *Bleu Parfeur*, white lightly edged and beautifully netted with dark blue. *Hortense* a clear yellow. *Old Gold*, the standard or upright petals are true old gold, falls marked white and purple. *Leopold* is after the same style, standards dark old gold, falls veined with brown. *Tubiflora* reminds one of a greatly improved common blue flag, the spikes are very long, sometimes bearing seven open flowers on a stem, the color is a delightful shade of blue and the fragrance is like that of orange blossoms. *Mme. Chereau* still holds first place as the best fancy variety, a clear white ground with a deep and delicately feathered edge of sky blue, makes it at once the most admired flower in the bunch, The roots may be planted with equal safety in either spring or fall, however, if you are anxious to transplant them during the summer do not hesitate to do so, for you run no risk, just shorten the foliage slightly and water well after planting ; if planted in mid summer, you will have the roots nicely established by autumn and gain several months. Among dwarf Irsises the Siberian species *Si-*

FIG. 1627.—IRISES AT WEBSTERS'.

berica Alba and *Siberica Coerulea* are conspicuous, the latter sort is several days later, more dwarf and a particularly fine deep purple color. *Pumila* is a very dwarf species with light purple flowers, in appearance it is a dwarf counterpart of the Germanica varieties There is a pure white variety, of this species which we are adding to the collection.

WEBSTER BROS.

Hamilton.

THE ASPHODEL.

THERE is no lovelier flower for the cemetery than this overshadowing canopy of twinkling blossoms, fit type of the soul's resurrection; covered with its dead flowers, its blossoms and buds, typical of the past, the present and the future. Up the mountains where the Greek buried their dead, they desired to think the sleepers would wake in fields Elysian. The fair meadows where the ever blooming Asphodel, or wrongly termed Daffodil, forever bloomed. Let us plant our churchyards with some at least of this hallowed flower, and keep the corruption of the name out of them, it no doubt being derived from *Fleur d'Asphodel.*

The world is slowly beginning to comprehend that the death of this natural body is the quick gate-way into eternal freedom, and cessation from life's hostilities and strife. And we look forward to the day when the places we establish to commemorate our affliction will become a living picture, known and read by all mankind. When Cremation aids us to thoroughly purify the earth, Cemeteries will be called Memorial Parks, and be no longer breeding places of disease and melancholy. The flowers and shrubs we plant now are our salvation from pestilence, particularly in cities.

M. A. HOSKIN.

PREPARING VIOLETS FOR WINTER BLOOMING.

To grow violets for winter blooming it is by far best to plant them where they are to remain. The frames may be placed about them later. Pick off every bud that forms, and remove the runners, and do not force them by giving fertilizers. The ground in which they are planted should be light and mellow and only ordinarily rich. What is wanted is a sturdy, healthy growth rather than a luxuriant one. Shower the plants frequently to keep down the red spider, unless they are where they will get the benefit of the dews and rains. Put the frames about them in October, but do not cover the plants until cold weather comes. At that time it may be well to fertilize the soil somewhat. Bank up well about the frames, and provide a sash to cover them that fits snugly. On every pleasant day after the weather becomes cold lift the sash a little to admit air. If it is intended to grow them in the greenhouse, where there are no beds to plant them out in, keep them in seven-inch pots. Clip the runners off frequently, and do not allow them to bloom until winter comes. Violets are not satisfactory for culture in the window of the living-room.—*Ladies' Home Journal.*

AZALEA.

SIR,—I should be pleased if you would kindly furnish me with some information regarding the care and culture of the Azalea. I have three varieties, and as the blooming season is over, I wish to know how to care for them during their resting period. Should they still be supplied with water during this time? I have been told that in renewing the earth in the pots it will be necessary to purchase from a florist, that they will not live in ordinary garden or flower pot soil. Is this correct?

The Crimson Rambler rose received from you last spring is growing nicely and full of buds. The Yellow Rambler received this spring has also made a good start. The Lilium Rubrum distributed two years ago, has developed and multiplied into a nice clump.

MRS. W. R. VANDERVOORT,
Sidney Crossing, Ont.

The Azaleas referred to in the above questions, are, I presume, varieties of the Chinese or Indian Azalea, and are generally catalogued by florists as Azalea Indica (greenhouse varieties), and are not the Ghent or American Azalea, the last named being sometimes forced and sold when in flower, and require quite different treatment from Azalea Indica. Some of the Ghent varieties are quite hardy in some localities in Ontario, and are of a deciduous nature, requiring a period of rest, which they get naturally during the winter season when planted out of doors as shrubs. The Azalea Indica requires no very decided period of rest; that is, so far as the withholding of water is concerned; they must never be allowed to become quite dry at the roots at any time, being of an evergreen nature.

Immediately after the flowering season is over the plants should be repotted, if necessary, which can be ascertained by knocking the plant out of the pot and examining the roots; if the plant has fairly well filled the pot with roots, and is in a healthy condition, repot into a larger pot; one size larger will be sufficient, as overpotting must be carefully guarded against. In repotting remove all the old drainage, and a little of the old soil from the top edges of the ball of roots, then place in a clean pot of the size required. First put in some broken pots or coarse gravel about an inch deep, covered with a thin layer of sphagnum or common moss; place the plant in the pot, so that the top roots are about half an inch from the top of the pot; fill in with a compost of one half peat, the other half being equal quantities of fibrous loam and sand, all well mixed together. Take care not to fill in too much of the compost at once, as each layer of compost must be packed firm around the plant with a potting stick; a broken shingle or thin piece of lath will answer very well for that purpose. Continue filling in the compost and packing until nearly level with the soil around the stem of the plant, so that when finished, the soil near the stem is slightly higher than near the edge of the pot; this is very essential to the well being of the plant, as the Azalea dislikes its roots to be buried deep beneath the soil. The packing process prevents the water from draining too quickly from the roots. After potting, water once thoroughly, but do not over water at the roots, until the plants are well established and root action well commenced, when water may be more freely given; syringe daily with tepid water, and keep the plants growing in a temperature of 60° or 70° until growth is completed, which generally takes about two months, after which the plants can be stood out of doors, say about the end of June, to harden the new growth. Stand the plants or plunge the pot into a bed of coal ashes, where the plants can have plenty of air and sunshine; I have found that too much of the latter

has proved injurious to the young tender growth, especially when first taken from the greenhouse. It is sometimes necessary to shade rather closely for a few days until the new growth has hardened a little. Afterwards a few slats of wood or lath about an inch apart, is all that is required to shade the plants, providing the plants are properly attended to in the matter of syringing daily, and the roots kept fairly moist, without allowing the roots to become quite dry; neither must they be kept sodden with water at this stage.

The Azalea is sometimes planted out in specially prepared beds, but this is only done where large numbers are grown. If after flowering, the plants do not look healthy or the roots vigorous, repot into the same sized pot, and take a little more of the old soil from the plant than before recommended, as bad drainage produces sour soil sometimes, which no plant, especially the Azalea, will thrive in. Syringing with diluted tobacco water once a week, or oftener if necessary, prevents and keeps down thrip and red spider, the two most destructive enemies of the Azalea grower. The tobacco water can be made by placing a handful of tobacco leaf or stems in a pailful of hot water, allow the liquid to cool, add a teacupful of the liquid to two gallons of water, and syringe with as required. The peat required for potting had better be purchased, as it requires to be specially prepared before using; it can be obtained at most seed stores, and is not expensive.

W. HUNT.
63 Aberdeen Ave., Hamilton.

APHIDS OF PLUM, CHERRY, AND APPLE.

(*Aphis prunicola, Myzus cerasi, Aphis mali.*)

DURING the spring and early summer, few days pass without bringing some inquiry as to the method of getting rid of the lice on one of these trees. As these three species of lice all yield to the same treatment, it seems expedient to discuss them together.

The apple-louse passes the winter in the form of an egg. These oval eggs are very characteristic; they are black in color after they have been laid for some time, and are usually crowded together in large numbers. These are very difficult to destroy, and thus far nothing has been found which will do any good without killing the tree as well. As soon as the buds burst in the spring, the young lice crowd on to them and commence to suck. The remain on the leaves for some time, but usually disappear in the early summer to reappear again in the fall at the time of depositing eggs.

The plum and cherry aphids differ in some respects, but the life-history in general is similar. They may be easily killed by a spray of kerosene-emulsion (Hubbard formula), diluting the emulsion ten times, or by a spray of whale-oil soap, using one pound of the soap to six gallons of water. In the case of the cherry aphis it is best to apply it a little stronger, as this louse is able to stand more than the others. Tobacco tea, made strong, is used by many with success, but whatever is used must be applied thoroughly, for each louse must be hit to be killed. — Mich. Exper. Station.

APPROACH TO A RESIDENCE.

THE approach to a residence is one of the most important considerations that confront the landscape gardener, as first impressions will naturally have effect on later ones.

FIG. 1626.—THE APPROACH.

Some tastes will lead persons to construct massive gateways, which in themselves may by truly magnificent, but which in relation to landscape effect will appear out of place unless the artist can so arrange trees and plants nearby to bring all into harmony.

In the case of a large estate, nothing should appear cramped, hence the entrance will be broad and the corners well-rounded. On the lawn, these corners afford opportunity for massing shrubbery; and a little further in from these may be an open group of well selected trees. The choice of these trees and the future of the shrubbery, are matters of considerable importance. To the writer's eye, the absence of strict formality is desired, and the trees should therefore be graceful, like the elm, Wier's Maple, Cut leaved Birch, Yellow Locust, etc., ; and the shrubs not continually sheared and rounded.

Evergreens in careful assortment take the place of the shrubs very acceptably, and make the entrance attractive summer and winter; and large ones may also be used in place of the deciduous trees—pines are perhaps most fitting.

Vines on walls and gate-posts are always pretty; but especially desirable are the loose-clambering ones like the Virginian Creeper. Let the latter be mingled with English Ivy for a background and winter effect.

Flower boxes for stone posts filled with summer plants and vines can be easily and tastily arranged and are admired by every one. In winter, they may be replaced by evergreens of dwarf nature or small specimens of larger ones, like Himalayan Pine, Lawson's Cypress and Scotch Pine.

The main idea should be to construct the entrance as a whole bringing in pretty features to enliven it and connect all with the estate in harmony.—Meehan's Monthly.

The Canadian Horticulturist

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Notes and Comments.

POISONOUS TOADSTOOLS.—Prof. Halsted says there are three very poisonous toadstools, all belonging to the genus *Amanita*, viz., The Fly Amanita, the Death Cup and the Vernal Amanita. Only last October, three persons in Trenton, N.J., died from eating the Death Cup, and leave a warning to us against ignorantly using fungi, Dr. Peek warns against fungi. (1) in button state or decayed (2) with swollen base and white gills, (3) with milky juice, (4) with cap or pileus thin in proportion to the gills; (5) tube bearing fungi, of which flesh changes color when cut; (6) fungi with spider-web ring about the upper part of the stalk.

EXTREME COLD does not seem fatal to the vitality of seeds we judge by an experiment of Tripler's with liquid air. Seeds of pea, wheat, oat, barley, squash and cucumber were kept at the unimaginably low temperature of 312 degrees below zero for 110 hours, and then gradually thawed for fifty hours. The seeds were then planted, and they germinated and grew, none the worse for their exposure.

STANDARD SIZES FOR FRUIT PACKAGES.—We notice that Mr. Penny's bill, regulating the sizes of fruit packages is creating considerable discussion, and that some growers and dealers are not very favorable to its provisions.

The objections urged are that the standard is neither imperial nor wine measure; and that its adoption would necessitate an entirely different size of crate, and a different size wagon box for carrying to advantage.

We think that bill is a move in the right direction and we hope something will be

done to create uniformity of packages, and thus prevent fraud. But to confine growers to use certain fixed sizes for their fruits might not always prove a wise regulation.

Perhaps a simpler method would be to make net weight the standard of sale. The weight of the package being known, it would be quite easy to stamp or write in pencil, on the outside of a crate, the number of pounds net of the fruit contents. This is commonly done now with grapes, and the same habit could easily be extended to other fruits.

BETTER SERVICE FOR FRUIT GROWERS.—A special express fruit train for the rapid delivery of fruit from the Niagara, Hamilton, Burlington and Oakville districts was put on the C. P. R on the 19th June by the Dominion Express Co. Seventeen new ventilated fruit cars, models of construction, clean and bright, have been put at the service of the fruit men. To feed this line of cars fruit will be collected by the H. G. & B. electric road, and by steamers which call at Jordan, Port Dalhousie, Niagara and Queenston, and carry the fruit across to Toronto in time for this new fruit train. We understand that the Grand Trunk proposes a similar service.

THE SAN JOSE SCALE inspection cannot be carried on without hurting somebody, and the great question is how to protect the interests of the public generally and at the same time do justice to the individual. For example, Mr. Angus Wigle, of Kingsville, has a peach orchard of about 1200 trees, which has largely escaped winter killing. In this orchard the inspector has found eighty trees badly affected with San Jose scale, from which the pest will quickly spread throughout the whole orchard; and no doubt many of the others are slightly infested. Consequently the inspector has ordered the whole orchard destroyed. Mr. Wigle would not object to the badly infested trees being destroyed at once, if the balance could be left until after he has gathered the fruit.

We hope the Department will find some way of satisfying Mr. Wigle's claims, and at the same time clearing out an orchard such as his, which threatens to be a breeding ground for the whole country.

Obviously a peach tree with a load of peaches on it in a year of scarcity is to be valued higher than a tree with little or no fruit and in a year of plenty.

MINNESOTA STATE HORTICULTURAL SOCIETY.—Twenty-sixth Annual Report; a fine volume, bound in black cloth, illustrated and with much profitable reading.

PEACHES IN ESSEX.—Our frontispiece shows a magnificent peach orchard of over 12,000 trees that were loaded with blossom and fruit this spring; but alas, the exceptional winter has done fatal work with the roots, and Mr Wellington writes that the whole orchard is now dead, except about 200 trees. He estimates they would this year have paid 10 per cent. net profit on a valuation of $60,000.

KANSAS.—The R. N. Y. quotes Mr. Wellhouse as saying that this year's apple crop will be the largest in the history of the State. He estimates that his 1,600 acres of apple trees will yield 100,000 bushels. The hard Winter injured only the tender varieties, and these are scarce in that State.

Question Drawer.

Heating a Small Conservatory.

1097. SIR,—I am desirous of putting up a small green house about 8 x 10 feet. Not being in a position to put in a hot water heater, can you or any of your readers tell me how best to heat it to say 50° when the cold outside is 20° to 25° below zero. Any pointers gratefully accepted.

IN TROUBLE.

Ottawa.

To heat a small conservatory like that described, a large oil stove would answer in ordinary weather, but when the mercury drops below zero two would be required. If the stoves are well made and properly cared for there will be little trouble from smoke, but it would be safest to provide a small pipe to carry off the gases to the outside of the house. It will be much more satisfactory if a hot water system could be used, and the oil stoves could be used for supplying the heat while a galvanized iron tank with a capacity of five gallons could be used as a heater. A coil of one-inch pipe containing as many linear feet as there are square feet of exposed glass, plus one-fifth of the woodwork, would distribute the heat around the walls of the conservatory.

L. R. TAFT, *Agri. Coll., Mich.*

Raspberries Affected With Rose Scale.

1098. SIR,—I send you samples of diseased raspberry canes, can you explain and give remedy.

A SUBSCRIBER.

Reply by Dr. Fletcher, Ottawa.

On the 1st inst., I received from you a card together with some samples of a scale insect on the raspberry. These have been examined and prove to be the Rose Scale (*Diaspis rosae*). The scale resembles the Scurfy Bark Louse somewhat in appearance, but is rather larger, nearly circular and is pure white in colour, forming a striking contrast to the green or reddish shoots of the plant upon which it occurs. It sometimes appears in large numbers and thus is easily observed. It is by no means a common insect in Canada but occasionally occurs on blackberries and raspberries, and rather more frequently on roses, particularly on such bushes as have not free ventilation or are fastened to walls or trellises. As a remedy for this insect Dr. J. B. Smith recommends whale oil soap, one pound dissolved in four gallons of water; to this add one ounce of carbolic acid and spray the bushes thoroughly. Badly infested bushes should be cut back severely in autumn and the cuttings burnt and all the canes left for crop treated a second time in spring before the leaves burst, if there is any sign of life in the scales.

Worms in Garden Soil.

1099. SIR, — I send you to-day a small box containing worms, such as have been infesting my garden for the last two years. In fact they have become so troublesome that I have been unable to grow, with any sort of satisfaction, sweet peas, edible peas, corn and many other crops. These worms cluster about the seed as soon as it starts to germinate, and attack it, causing it to soon rot, and of course the crop is destroyed. If you, or any of your subscribers, can suggest any means of getting rid of the pest, I should feel very thankful.

Last summer was the first time my garden was troubled with these worms. They are much more numerous this season, in fact my kitchen garden is almost ruined by them. I will be glad to hear from you at your earliest convenience.

T. H. PARKER.

The creatures sent with your letter from Mr. Parker of Woodstock are Julidæ or millipedes. These are occasionally complained of in gardens. A light application of nitrate of soda is

sometimes useful in not only stimulating the plants but also, it is claimed, in destroying the millipedes. 150 lbs. to the acre is recommended.

JAS. FLETCHER.

Ottawa.

A Choice List of Roses Wanted.

1100. SIR,—I have been looking anxiously for that gilt edged list of really hardy Hybrid Perpetual Roses that Mr. T. H. Race of Mitchell promised in the *Magazine* for December. Please jog to his memory as I hope to add to my few roses in the fall, and according to the catalogues they are all perfect. I have Gen. Jacqueminot, Mrs. John Laing, Anne de Diesbach, and Margaret Dickson; also a white one, and Crimson Rambler. I have room only for a few more, so I want extra choice varieties, and they *must have perfume*. Mrs. John Sharman Crawford is exquisite, but is it hardy? and I could not detect much perfume. Alfred Colomb is a lovely rose, and very sweet; can you tell me its faults?

M. E. B.

Toronto.

Would our rose fanciers give their views in answer. At Maplehurst Alfred Colomb is a special favorite with its large fragrant carmine-crimson flowers. A good hardy and fragrant rose is Baron Provost. It is rose color, and a free bloomer. Some other special favorites with us are Gabriel Luizet, a beautiful pink rose, of excellent form, a free bloomer, and very fragrant; Paul Verdier, carmine red; and Paul Neyron, deep rose, and somewhat fragrant, the largest variety known.

Mrs. Doctor Hoskins of Newport, Vermont, who writes so lovingly of her floral treasures, sends us a note on roses, which may well be published as a partial answer to our Toronto correspondent. She says:

Where one has room for a bed of hardy roses and knows little of the properties of them, a suggestion may be useful. A few like Marshal P. Wilder, Capt. Christy, Mrs. John Laing, Mabel Morrison, Gen. Jacqueminot, La France and Vick's Caprice, make a fine selection. Then a border of the half hardy and quite hardy Polyantha, which are constant bloomers and can be protected by leaves and a little light manure after freezing, are well worth the care. The Dinsmore is an acquisition in northern latitudes, and a profuse bloomer; also Ulrich Brunner. The La France rose is sometimes a better gift to a boy or girl than even a book. I knew one boy that was hard to manage, and whose aunt made him the present of this rose, and for love of them he became one of the model boys of the neighborhood. The hybrid tea roses are half hardy but, given a banking up of soil and old manure well mixed, they will stand almost any northern winter. In teas, a good choice is the three Souperts, which are said to be hardy with slight protection. Marion Dingee, Sunset, Maria Lambert, Inconstant, Princess Bonner, Etoile de Lyn and Perle des Jardins, are my favorites.

Do without some unnecessary thing you are accustomed to, and plant a bed of these roses, and see if you have not made a grand exchange.

M. A. HOSKINS.

Newport, Vt.

ONTARIO FRUIT CROP.

As reported by Ontario Fruit Growers.

Simcoe County: For a few weeks the weather has been very wet, and strawberries in low lands have been completely drowned out; they mostly came well through the winter, and spring frosts have hurt them but little; in high lands they will be a full crop. Red and white currants and gooseberries promise a full crop, and to mature a week or ten days earlier than usual. Black currants "fair to middling." Plums none, except of the Japan and native varieties. Cherries not much grown, and birds will get most of them. Pears not much grown. Apples of all kinds promise well, and with proper spraying and thinning a profitable crop is assured. But few currant worms have yet shown up, and they cannot now do any damage to this year's crop; but late broods, if not destroyed, may affect next year's crop.

C. L. STEPHENS, *Orillia.*

The last bulletin from the Bureau of Industries, Toronto, gives the following report of fruit:

Colchester, Essex: Peach trees have been killed by hundreds and thousands. One neighbor who has twenty-five acres told me yesterday that he will have to pull up the whole field; and many smaller lots have suffered as badly.

Gosfield South, Essex: All peach trees are dead by frost, and many other kinds.

Mersea, Essex: At least 50 per cent. of peach trees killed and some plums.

Stamford Welland: Vegetation will probably rush along now, as during the past two or three days we have had summer heat. I never knew the buds to come out so fast. The leaves came out on some trees within a few hours; they seem to almost grow while looking at them.

Nottawasaga, Simcoe: Nearly a car load of young fruit trees were shipped into Creemore the other day. Farmers around here are taking considerable interest in planting out orchards. In a few years to come this neighborhood is going to play an important part in fruit production.

Grantham, Lincoln: In some orchards part of the peach trees are killed by the excessively cold weather, freezing and injuring the trees under the bark. The buds of all fruit trees were very backward during the winter, and even well into March there was scarcely sunshine enough to cause them to swell noticeably, so they were not in this section killed, as many who stay all winter in the house reported. Some varieties of strawberries, especially the Clyde, not covered by litter during the winter, are killed, and tender varieties of raspberries are more or less killed in canes which should bear fruit this year. Grapes are about as usual. Spraying fruit is becoming a necessity for successful growing, as each fruit has its insect enemies and fungous diseases.

Trafalgar, Halton: Caterpillars are already making their appearance on apple trees in large numbers. It is to be hoped that farmers will make more efforts to destroy these than many did a year ago. Many orchards, especially in the north end of the township, were entirely stripped of foliage.

Mr. A. E. Sherrington, Walkerton, writes:

The raspberry crop will be lighter than last year, as so many varieties suffered by the winter snow and frost. Some of them will not fruit at all. Hilborn is about the only black cap that came through all right; it will give a full crop. The Hale and Wickson plums were nearly killed out-right, and a few trees of other varieties. The Abundance and Burbank plums are loaded with fruit.

TREATMENT OF BULBS.—It is a well-known fact that bulbs, forced in our country, are comparatively useless for flowers the season following. This is really owing to the fact that the leaves have not been permitted to mature properly. A bulb is composed of the bases of leaves which have become thickened and succulent. To make good, strong bulbs, therefore, it is necessary that they should have had good, strong leaves for their parents. Our bulb growers commence to dry them off almost at once after flowering, instead of allowing them to grow as long as possible. Even then, they will not flower as freely as newly imported bulbs, because they are only allowed to flower until the bulb has reached a size desired by the grower. Bulbs generally have the flowers plucked out, until they have reached the size desired.—*Mechans' Monthly.*

ONTARIO FRUIT CROP REPORT.

Prepared by the Ontario Fruit Growers' Association, June, 1899.

Scale—very good—good—fair—poor—very poor.

	Apples.	Apricots.	Blkberries.	Cherries.	Currants.	Grapes.	Pears.	Peaches.	Plums.	Gooseberri's	Raspberries	Remarks.
Trenton—												Orchards
W. H. Dempsey	fair to poor		poor	good	good		fair		poor			suffered much
Georgian Bay District—									fair to			from worms
J. G. Mitchell, Clarksburg	good		very good				fair	none	good			and other in-
Ontario Co.—				good to								sects.
R. L Huggard, Whitby	poor		very good	very good	fair	good	very good		fair	fair	good	
Middlesex and Perth—												
T. H. Race, Mitchell	good			fair	good	none	fair	none	good.	good	fair	Raspberrries
Victoria and Peterborough—												winter killed.
Thos. Beall, Lindsay	very poor				very good	very good	poor		none	very good	very good	
Burlington District—					fair to							
A. W. Peart, Freeman	fair	very poor	fair	fair	poor	fair	fair	poor	good		fair	
St. Joseph's Island—												
Chas. Young, Richard's Landing	good			very poor	poor		poor		poor	poor		
Frontenac and Addington—												
Geo. Nicol, Cataraqui	fair		fair		fair	good	poor		very poor		fair	
Grenville and Dundas—												
W. A. Whitney, Iroquois	very good		very good		very good	very good			no bloom		very good	Tent cater-
Lincoln—												pillar very
A. M. Smith, St. Catharines	poor			fair		fair	poor	fair	good		poor	destructive.
Simcoe—	fair to											
G. C. Caston, Craighurst	good			very good	very good		poor		poor	good		
Durham—							fair to					
E. C. Beman, Newcastle	poor		fair	fair	fair		good		poor		fair	
Grey—												
J. I. Graham, Vandeleur	good			good						good	good	Tent cater-
Grenville—												pillar de-
H. Jones, Maitland	very poor						fair		none		good	structive.
Ottawa District—	poor to											
R. B Whyte, Ottawa	fair			very poor	very good	very good			poor	good	very good	
Oxford—												Blackberries
J. S. Scarff, Woodstock	fair		poor	good	fair	good		fair	very good		fair	winter kille

Open Letters.

Caterpillars.

SIR,—I find my orchard is badly infested with caterpillars. They are as yet very small but working industriously and I see have done a good deal of damage to leaves and blossoms which are pretty for adornment. Have sprayed all my trees *twice* thoroughly so far, first spray with blue stone, second blue stone, Paris green and lime. What an effect it has on other things it does not appear to bother the caterpillar. We had them last year but scraped them off and killed them on the trunks and big branches and burnt the ones higher up with coal oil torch. We had a good deal of work doing it but got rid of them in that way. This year however, they are apparently going to be even worse than last, at least their ravages are showing up worse than so far last year. Is there nothing can stop them? Was thinking of kerosene but am afraid it will hurt the leaves and blossoms. If I knew the formula of mixing it I would try it. If we cannot get rid of them in some way they will ruin our orchards up here anyway.

W. B. STEPHENS, *Owen Sound.*

EDITOR: See article on this subject, page 120 We would advise a thorough spraying with Paris green water, 4 ounces to 40 gallons of water, separate from the Bordeaux mixture.

That Fumigation Business.

SIR,—In the April number you publish the recent amendment of the San Jose Scale Act.

Clauses 3 and 4 prohibit the removal or sale of any plant from any nursery without fumigation in a manner prescribed. The last clause prohibits the removal of any plants from any nursery where the inspector finds scale, "until the inspector reports to the minister that it is safe in the public interest to permit the said nursery stock to be removed after fumigation." How is this? Why restrict the nursery business to those able to furnish fumigating plants, if it is inefficient? I am also curious to know how the possibly scaley stock of the last clause is rendered harmless if fumigation won't do it.

ADAM RUSSELL, *Malvern, Ont.*

A Seedling Apple.

SIR,—I sent you last week by mail a seedling apple of our own production to see what you thought of it; I believe it will turn out to be fine winter apple.

It is a good keeper. I had about six last fall and I just put them on a plate in the cellar and they kept fine. I tried one or two at different times through the winter and I find they are not fit to use till toward spring. I had about a peck the fall of '97; the tree bears early and is a very rapid grower, and to all appearances is going to be a good bearer.

JOHN STEWART,
Per G. Stewart,
Benmiller.

Apple Inspection.

SIR:—I have followed with very much interest your articles in the May and June numbers of the "HORTICULTURIST," with regard to dishonest apple packing in which you certainly are on the right track in advocating that the apples be subject to inspection, and also to confiscarion when not up to grade. That this evil has grown to such enormous dimensions as to require legislative interference is evident, but why limit the inspection to apples for export only? Is the Canadian consumer of no account?

I bought a barrel of exceeding fine looking Northern Spy apples from a dealer in Montreal about the beginning of April last, paying him $4.75 for them. The top two or three layers were as fine Spys as you could wish to see; below that the barrel was simply filled with rubbish. I kept the head of the barrel which I send you by prepaid express tonight along with the paper cover over the apples, and four of the apples which I have managed to keep from decaying. You will see by the packer's name and address being upon the head and thus certifying the apples to be "choice Canadian apples" "Gilt Edge" and "X X X," that the intention was well calculated to deceive. The apples in this barrel were not worth over $1.00 to any one who would have bought them at all.

I assure you in all seriousness that if the Ontario apple growers do not speedily devise some means to remedy such contemptible theiving, that their pockets will very soon suffer. I, for one, intend to boycott all Ontario apples in future unless some reasonable system of inspection is devised to protect the Canadian as well as the British consumer; do you think I will be the only one to do so?

Now, I am not a fruit grower, but it seems to me that a thoroughly efficient system of inspection could be instituted which would render such detestable work practically impossible, but I think the scheme should first be formulated by the apple growers and packers themselves rather than wait for the Government to do so.

What would you think of forming an "Ontario Apple Growers' and Packers' Association," to be incorporated with extensive powers? The character of such association to be granted to say 10 or 20 of your best growers and packers, whose reputation is unquestioned. Admission to the Association to be secured by filling up a form of application, agreeing to abide by the rules and regu

lations, by-laws, etc., of the Association : such application to be accompanied by a recommendation signed by at least two reliable persons. The by-laws should of course set up the standard required for "Gilt Edge" or "X X X" apples etc. : each member specially agreeing that all fruit not passing inspection be confiscated, as well as to have that fact published in the "HORTICULTURIST" and other papers.

One of the main advantages to the shipping members would be the adoption of a uniform and elaborately engraved and copyrighted design, printed upon special waterproof paper of circular shape, just right to cover the outside head of each barrel. These should each be indelibly numbered, and should be under the control of the Secretary-Treasurer of the Association, who upon application would issue them as required, first inserting upon *each* label the applicant's name and address with stencil, together with his own signature and date in the blanks left for that purpose (leaving one blank for the name of the variety of the apple). A careful account of the number issued to each applicant should be kept, and should it be found advisable, any applicant might be required to report to the Secretary what he had done with his labels. All unused labels to be returned at the end of the shipping season to the Secretary and new ones issued the next season : the year to be in *very large* (but light, open work) figures across the center of the label, which should also bear the words : "This label is only valid for use over apples grown in the year....and its use is specially forbidden by the rules of this Association any year after that time." This would prevent any unworthy member from fraudulently using old labels after having been expelled from the Association.

If the standard of quality required by the Association was a high one and rigidly insisted upon by efficient inspection, and all offenders promptly expelled, and their fruit confiscated, it seems to me the demand for apples bearing this design would very soon exceed the supply. Not more than 5 bbls in a 100 would probably need to be examined after the first year.

If you think this too crude an idea, please give us a better one ; but for the sake of the future of the apple trade of Canada (of which I understand Ontario furnishes by far the largest share) something practical should at once be devised to prevent the trade from further falling into public disgrace and disrepute.

GEO. O. GOODHUE.

Danville, P. Q.

The Plant Distribution.

We have the most diverse opinions regarding the Plant Distribution. Some say discontinue and put the $600 it costs into the JOURNAL ; others say it is most important, do not give it up. The following letter from Mr. C. B. Jackes, Toronto, takes a very moderate view of the whole matter :

SIR,--In your last issue you ask an expression of opinion as to the discontinuance of the bonus distribution of plants, etc. So far as I am concerned, I do not see how you can afford to distribute these plants and give the splendid value you do for the subscription price, and if the discontinuance of the bonus would enable you to increase the value of your periodical, by all means put the value of the plants there.

The plant sent me was an Elæagnus longipes. It came apparently in perfect order, carefully wrapped and covered. I at once puddled the roots and planted it same day. It never showed a sign of life until the 1st June, and I was a dozen times on the point of throwing it away. However, on scratching the bark near the ground there appeared to be some sap in it, so I allowed it to remain. On 1st June I observed signs of sprouting, and now there are half a dozen healthy sprouts making up for lost time.

Of course, it is nice to get the plants which you send out, but I think the same object would be accomplished if you would occasionally, say in the September and February numbers, publish a list of desirable ornamental shrubs, hardy in the climate, for Fall or Spring planting, giving the common name as well as the scientific, and stating the prices at which they may be obtained, and finally, but most important, give the name and address of a reliable nurseryman from whom they can be obtained. The course now pursued by myself and many others is to order such plants through one of the seed firms in the city, knowing full well that we pay their prices for the article, but preferring to do so if we get a good article, rather than order through plausible agents.

HINTS ON THE EASTER LILY.

BULBS potted in August may be expected to bloom at Christmas time. Planting of bulbs late in October or early in November allows plenty of time for slow growth and for flowering by Easter time. Pots should remain in the dark at least six weeks so that roots may grow plentifully from the base of the bulbs.

The Easter or Harris lily throws out a secondary group of roots a little above the bulb, soon after stem growth is properly begun. For this reason, more soil should be heaped above the bulb from time to time till the pot is full. The first planting should be deep in the pot to allow room for the additional soil added later.

Six months will be required for the complete development of the plant from the time of planting. When first brought from the cellar a group of tips will be seen protruding from the earth. Water moderately, and gradually expose to the light. When tips turn green, increase the light but not the temperature. Slow growth, in an atmosphere moist and having a temperature ranging from fifty-five to sixty-five degrees Farenheit, is advised. A dry, hot atmosphere is fatal to success.

To hasten the time of bloom bring into a warmer room, increase the sunlight, and keep the air moist by allowing water to evaporate more or less constantly from a dish on the stove or register. To retard growth, when development appears too rapid and bloom probable before the desired time, set pot in cool dark room and water moderately.

If the soil is rich a profuse watering every third day will help the roots to abstract the nourishment it needs. If lacking nourishment, as may appear by weak growth, a half-pint of liquid manure should be given the plant each week or half-pint of water having in it ten drops of liquid ammonia. So large a bulb as the Easter lily is a gross feeder, and appreciates any extra care. After the plant has bloomed, it should be moderately watered till the foliage turns yellow. This indicates that the bulb is ripe and ready for a period of rest. Withhold water altogether, and set pot away in some cool cellar till the following October. It is then planted out of doors and treated as other lilies. Having bloomed once in the house, it is not fit for a second forcing, but out of doors it will renew itself so as to bloom in a year or two. In the open ground it is desirable that this lily should have some protection for winter, such as is afforded by two or three inches of coarse stable litter, or a thick covering of leaves.—J. F. B., Vick's Floral Guide.

CHRYSANTHEMUMS.

THE chrysanthemum plants which have been wintered in the cellar should now be brought to the light and given plenty of air and water; and in a short time the light-colored shoots will take on a green healthy appearance. After they have become well established they should be separated from the parent plant, each containing a portion of the fibrous roots which are supporting it, and potted into a small pot, where if

given proper care it will continue to grow as if nothing had happened. If it is desirable to grow them in the garden during the summer, they should be hardened to the outdoor conditions by placing them in the open air during the warmer part of the day and protecting them during the night, till the ground has become sufficiently warm for them to be placed in the open garden.

They usually give large blooms, and plants are more easy to handle, if they are grown in pots during the entire summer. When this is done, it will be best to repot them as they need it, till they have been placed into six or seven-inch pots. The pots should be kept plunged into some material, as coal cinders, which will assist in holding the moisture. They can be placed in some protected corner of the garden and plunged into the soil if coal cinders cannot be obtained; or they are put into a frame and covered with lath screens during the heat of the day; but they must receive plenty of air and water if good healthy plants are expected The plants should never be repotted after the buds have begun to develop. An application of liquid manure should be made twice a week till the buds begin to open, then it should be discontinued. A dressing of well rotted barnyard manure is often placed on the surface of the soil.

The plants should be trained from the time they are about six inches high. If the bush form is desired, the top should be nipped off about six inches from the ground and the side buds be allowed to develop; if only from three to five buds are allowed to remain, the buds will produce large flowers on long stems. If the tree form should be desired, the central stem should be allowed to grow about two feet high; then the tip should be nipped out, and the lower branches trimmed to the height where it is desired to form the head, and above this the branches should be pinched back whenever the top needs to be made thicker. When the buds are formed, the weak ones should be taken off to encourage the growth of large flowers.

The plants which have been grown in the garden through the summer should be taken up before the buds begin to form and placed in pots or well drained buckets. The objection to the garden grown plants is that the roots have such a wide range that many of the best feeding roots are lost in the operation of taking up the plants, and thus the plants are reduced in size.

W. H. MOORE.

Kansas Agricultural College.

Yellowish Rose Leaves.

SIR,—I duly received your letter of the 20th ult, containing one from Mr. R. Cunningham, of Guelph with rose-tree leaves that had turned yellow. Though there was no insect on the leaves, there were under the leaves webs of the minute red spider, which is no doubt the cause of the trouble. Kerosene emulsion sprayed on the plants affected, well under the leaves has been found effectual, also water containing finely powdered sulphur. A treatment which has given good results in California, even on trees, has been fine dry powdered sulphur distributed on the foliage in the morning while the leaves were damp. The ro-e bushes should at the same time be fertilized so as to invigorate them and help them to withstand the attack.

Without sample of the leaves ot the dying pine trees, it is impossible to speak positively as to a cause. It certainly cannot be the mulching with barnyard manure, but it might be winter killing, as has been the case in other places in Ontario.

J. FLETCHER, *Ottawa.*

Our Book Table.

Among the subjects treated in Maynard's "Landscape Gardening," are: "Landscape Gardening and Home Decoration," "Ornamenting New Homes," "Preparation of Land Trees and Herbaceous Plants," Walks and Drives, "Improving Established Homes," "Roads and Roadside Improvements," "Public Squares," "Parks," "Cemeteries and School Yards," "Description of Trees and Shrubs," "Evergreen Trees," "Ornamental Shrubs," "Hardy Herbaceous Plants," "Aquatic Plants," "Hardy Ferns and Ornamented Grasses," "Insect and Fungi Injurious to Ornamentals."

HARDINESS OF JAPAN PLUMS.—We are inclined to think that this plum will endure more frost than is usually supposed. Mr. Hale says they will stand 25° below zero; and perhaps he is not far wrong, for at Day's Mills, North Algoma, where the thermometer often goes lower than that, we found both Abundance and Burbank in good condition after two years planting.

3 REASONS

WHY YOU SHOULD

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PLANT LICE OR APHIDS.

If there is any group of insects that requires the constant attention of nurserymen, green-house owners, orchardists and farmers, it is the family of plant lice or aphids. The season of 1898 has been unusually favorable for these vermin, as is always the case when the spring opens moist and cloudy, with very little hot weather early in the season. Such widespread and well-known pests require very little description; their small, pear-shaped bodies, rarely exceeding one-quarter of an inch in size, with the slender legs and feelers, are known to everyone. The life-histories of these plant lice are, however, not so well known, and in many cases they are as yet a mystery. Many species pass the winter in the egg stage, although a large number of species are not yet known to produce eggs. "The "winter eggs," hatching in the spring, produce wingless females, which bring forth living youth without the intervention of the male. In some cases these young produce in turn winged females, in other cases wingless females (but these, whether winged or wingless, have the same power of producing young without pairing), and in the great majority of cases, if not

Aphids are sucking insects, taking their food through a slender tube which is thrust deep into the tissue of the plant. For this reason any arsenical poison that may be deposited on the surface of the plant will do them no harm; they will thrust their beaks clear through the poison into the plant and will suck the sap from beneath the surface. To kill these little robbers it is necessary to use contact poisons, such as kerosene emulsion, whale-oil soap, to bacco-water, Pyrethrum, or some application which kills by closing up the pores or by irritation, or else to use some vapor, smoke or gas, such as tobacco smoke or carbon bisulphid.
in all, this method of reproduction is carried on until fall. Then in some cases males and females are produced, which, after pairing, give rise to one or more eggs, which serve to keep the species over winter. In many instances, as with the black peach-aphias and the grain aphis, the aphids themselves live over winter. In some cases, as in the case of the hop-aphis (*Aphis humui*), the winter eggs are laid on one plant (in this case on the plum, while the young migrate to some other plant in the spring. The hop-aphis migrate from the plum to hop-vines and passes the summer there.

Montmorency.

Early Richmond.

KENTISH CHERRIES.

THE
CANADIAN HORTICULTURIST.

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KENTISH CHERRIES.

THE classification of cherries is very unsettled, and unsatisfactory, being founded too much upon form and color. The common American grouping is into I, Hearts and Bigarreaus, fruit heart-shaped, and II, Dukes and Morellos, fruit round, and III, Native Dwarf. But surely the Hearts and the Bigarreaus are sufficiently distinct for separate grouping, if only by reason of the difference in texture of the flesh, as for example the Tartarian (Heart) and Yellowish Spanish (Bigarreau). Again why class together the Dukes and the Morellos which are so totally distinct both in habit of trees and in fruit, as for example compare the May Duke, with its upright habit and fastigiate foliage, and very mildly acid fruit, with the English Morello, the fruit of which stains and is totally distinct in habit of tree and in flavor of fruit.

Then why should the Morello and the Kentish varieties be put together, when the fruit is so distinct in color, flavor and texture. The former is well represented by the English Morello, and the latter by the Early Richmond and the Montmorency. It is of these two varieties we desire to speak more particularly at this time.

The EARLY RICHMOND is an American name taken no doubt from Richmond, Virginia, where it has been planted in early years, just as the Old English Williams Pear took on the name Bartlett, at Boston, from the first introducer. It is also called the *Virginian May*, although with us it does not color before the middle of June. It was not easy for a time to trace this variety to its identity in England and France, but from all we can learn it is the *Kentish Pie cherry* of England and the *Hative* (Early cherry) of France (Le Roy). The cherry appears to be of French origin, and George Lindley supposed that it had been brought into England from Flanders in the reign of Henry VIII.

The tree, like all the Kentish and Morello, is a slow grower and slender

in branch, but very hardy, and productive in proportion to its size. Some trees five or six years old at Maplehurst produced about 30 quarts each, and since the trees may be planted about fifteen feet apart, the yield per acre would be excellent in a year like this.

The *fruit* is not large, as is shown by our engraving which is the natural size, but it is free from rot, and not very subject to curculio.

The form is almost round, though slightly flattened; the skin is uniformly of a bright clear red, becoming darker as it matures. The stem is slender, about one inch in length, often carrying the calyx, inserted in a good sized cavity. Apex set in a small indentation.

The *flesh* is very tender in texture, yellowish, with abundant uncolored juice, flavor quite acid, pit small.

Season, June 20th, to July 10th, (1899).

Quality, poor for desert, but 1st class for all culinary purposes.

Value, very good for market.

Adaptation, succeeds at all the stations.

THE MONTMORENCY.—Of all the Kentish pie cherries this seems to us the most profitable. The tree is one of the most vigorous of its class, the fruit is large, and abundant. This and the Early Richmond cover the season very well, and are the two leading Kentish varieties for market. In France, this cherry has many synonyms, as for example *Montmorency a longue queue*, *Petit-Gobet*, etc.

Origin Montmorency valley in France in middle of 17th century.

Tree, healthy, fairly vigorous, very productive, and hardy.

Fruit attached in ones and twos, ¾ long by ⅞ of an inch broad, roundish almost flattened at apex, skin bright shiny red becoming darker red at maturity, easily detached from the flesh; *stem* 1½ inches long, in rather large cavity.

Flesh, salmon yellow, tender very juicy, sprightly acid.

Season, July 1st, to 10th in (1899).

Quality, very good for cooking.

Value, good for market.

Adaptation, general.

There are a good many other varieties of Kentish but the most common is the old Kentish Late which differs little from Montmorency except that it is smaller and less productive.

In our experimental collection we notice *Suda Hardy*, *Lutovka*, *Kings Amarelle* and *Spate Amarelle* all of which seem to ripen during a season covering the greater portion of the month of July. These are only two years planted, and are all bearing a few cherries each. The Early Richmond and the Montmorency are about twelve years planted and are carrying between 30 to 40 quarts each.

As the various kinds increase in size and age we shall be able to give our readers more definite information regarding their value.

TOMATOES.—An Exchange says: Market gardeners do not often give away their "snaps," but one confessed not long ago that he had led the market in early tomatoes for several years by following two rules. He plants in north and south rows, and lays the stalk horizontally in a shallow trench, leaning the plant to the north and covering all except the top of the plant. This plan lets the sun strike the ground over the roots and buried stalk and hastens fruiting. His other rule is never to cultivate in any way which would wound the roots after the blossom has appeared. When wounded the plant stops feeding the fruit until it has repaired the damage.

JUNE FLOWER SHOW, HAMILTON HORTICULTURAL SOCIETY.

HAMILTON ROSE SHOW.

THE exhibition held by the Hamilton Horticultural Society on June 21st, was a decided success The display was first-class, the music excellent, the weather perfect and the attendance very good. In addition to the members several outside friends contributed fine specimens. Among the latter may be mentioned Mrs. Stuart, Inglewood; Mr. A. E Alexander, Aberdeen Ave; Mr. Goodale, Asylum; Mr. Morgan, Florist; Dr. Russel, Asylum; Senator Sanford, Wesanford, and Mr. L. Woolverton, Grimsby.

The centre of the tent was occupied by a grand display of stove and greenhouse plants, among which were many magnificent specimens of hydrangeas, palms, pandanus, ferns, auracarias, clerio-dendendrons, ficus, coleus, fuschias, oleanders, sedums and amaryllis, exhibited by Dr. Russel, R. A Lucas, Thos. Horn, M. Skedden, A. Alexander, W. Hunt, gardener for Mr. John Stuart; and S. Aylett, gardener for Senator Sanford.

A very neat and clean collection of anthuriums, palms and other stove and greenhouse plants shown by E. G. Brown, florist, surrounded the orchestra in the rear, while the side tables were taken up by cut roses and herbaceous blooms, fruits and smaller pot plants. The following, in addition to above named, received special mention from the Judge, Mr. Roderick Cameron, of Niagara Falls Park.

The order of mention is according to position occupied by exhibits.

CUT ROSES IN VASES.

Mr. J J. Evel, 10 varieties.

Mr. B. E. Charlton, 10 varieties.

Mr. S. Briggs, 4 varieties.

Mr. H. J. Healy, Baron de Bonstetten.

Mr. Adam Brown, 2 varieties, shaded.

Mr. Wm. Hancock, Paul Neyron.

Mr. E. Fisher, T. H & B Ry., 9 vases.

Mr. Jas. Ogilvie, 16 varieties

Mr. A. E. Alexander, 16 varieties.

Mr. Wm. Hunt, Hybrid Teas.

Mr. Goodale, (gardener, Asylum for insane), a very large collection.

Webster Bros., a fine display of roses, paeonies, campanulas, delphiniums, aquilegias, cannas, etc.

Messrs. John Knox, W. F. Burton, Geo. G. Brower and James Ogilvie, beautiful baskets of roses.

Mrs. Stuart, Inglewood; collection of herbaceous cut-blooms.

W. F Burton and John Knox, baskets of pinks, petunias and catalpas.

Mrs. Thos. Horn, beautiful boquets of white carnations and asparagus plumosus.

Mr. Morgan, florist, and Mr. James Ogilvie, collections of sweet williams, gaillardias, coreopsis, marguerites, etc.

Master Harry Tribe, a wonderful dahlia.

A. Alexander and W. C. Brennen, single and double tuberous begonias.

W. Hunt, S. Aylett and A. Alexander, adiantums and gloxinias.

Walter Holt, Florist, marguerites and delphiniums.

Mrs. Boyd, West Ave., amaryllis and oleander.

Mr. A. Alexander, arethusa bulbosa.

Mrs. Woodman, cocos, cactus and richardia.

W. T. Miller, rubber plant.

Mrs. Garson, ferns, palms and imantophyllum.

Jas. Anderson, stag-horn fern, rhododendron and orange, and last in the

floral line, but not least, a fine collection of cut roses, pentstemons and other blooms from Mr. L. Woolverton and Grimsby friends.

FRUITS AND VEGETABLES.

Geo. Wildes, cucumbers, very good.

Master Frank Gage, potatoes, would be creditable to Southern States.

Jas Patterson, cherries, strawberries, gooseberries and lettuce, very good.

Wm. Farrar, strawberries and cherries, very fine.

Geo. Wildes, strawberries and gooseberries, excellent.

Mr. Samuel Aylett filled the rather trying position of Superintendent to the satisfaction of all. Osler's orchestra furnished music during the afternoon and evening.

Mr. Wm. Hunt, gardener at Inglewood, exhibited some grand specimen adiantums at the Hamilton flower show. Many were indeed surprised to learn that they could be grown to such perfection.

J. M. DICKSON,
Sec.

COVER FOR BERRY WAGON.

IN handling berries it is important to keep them from the heat of the sun, and we found it difficult to get our fruit to market in good condition in an open wagon, and so last winter decided to build a cover. The accompanying illustration represents the plan which we adopted, and we have found it so convenient and beneficial that we would not be without it for many times the original cost, which was about $7.

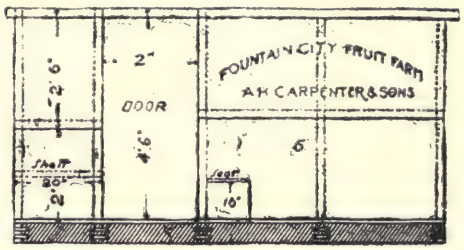

FIG. 1627.—OUTLINE OF BERRY WAGON.

It has five 1½ by ¾ in. bows which set into staples made of strap iron bolted to the sides of the box. A 2 in. rave is put on the outside with the lower edge just below the top of the box so as to carry the water over. From this rave the sides and front are boarded up 2 ft. with ⅜ in. matched sheathing, on top of which is another 2 in. rave ⅞ in. thick. The sides are covered with canvas the remainder of the way up.

The seat is set back in the center, leaving room for one row of crates in front, which makes them handy to get at and evens up the load. To support the seat an inch board is bolted to theinside of the bow withthe lower edge resting on the top of the box. The seat is 12 in. wide and is fastened with hinges at one end, so that it can be turned up out of the way when loading or unloading. The top is covered with ⅜ in. matched sheathing the same as the sides. The top is well painted and then covered with canvas. The canvas on both sides and top was first sized with hot glue to fill up the cloth and then painted with white lead and oil with a very little lampblack to give it a drab color. This makes the canvas water-tight and keeps it from shrinking. In this wagon we can carry 50 crates and have them where we can easily get at them. When we wish to use the wagon without the top it can be set off out of the way. — American Agriculturist.

FIG. 1628.—CLIMBING HYDRANGEA.

THE CLIMBING HYDRANGEA.

(Schizophraga hydrangeoides).

WHEN visiting the floral exhibit of the Hamilton Horticultural Society last June, we also visited the garden of Mr. John Knox, a prominent member, who has several rarities on his grounds as for example, a variegated maple, a variegated ash, a double-flowering peach, etc. But, perhaps, the most remarkable of all, is a climbing hydrangea, which has covered half the front and a portion of the side of his brick residence. We do not know of another specimen of this plant in Canada; Mr. Cameron, of Niagara Falls Park, who was with us, valued it so highly that he said, "If it were mine, I would not take $300 for that plant."

Our frontispiece shows this beautiful vine, as it appeared at the time just in full bloom, and showing off to best advantage. We also secured a photograph of one of the flower cymes, which will give our readers a fair idea of its manner of blooming

It is a fine climber for old dead trunks of trees, and does equally well for wooden or stone buildings, throwing out aerial rootlets, which cling quite as tenaciously as the Japan Ivy. The leaves are opposite, five inches across, nearly round, and toothed. The flower cymes are from six to ten inches in diameter, and are composed mostly of fertile flowers which, however, do not fruit.

APPLES IN NORTH WESTERN ONTARIO.

FIG. 1629.—A MANITOBA DUCHESS APPLE TREE.

IT would appear that our visit to Sault Ste. Marie did not reach the extreme northern limit of the apple. At a meeting of the Western Horticultural Society in Winnipeg, in February last, a photograph was passed around showing a Duchess of Oldenburg apple tree, growing in the garden of Mr. W. L. Lyall, of Portage la Prairie, which had on it forty-five fine apples, and we are glad to be able to show our readers an engraving of the photograph. Mr. A. P. Stevenson, of Nelson, Manitoba, read a paper before the Society on "What the past year has taught us," from which we take the following regarding apples.

"Our most prolific crop is the Transcendant, one tree alone yielding fully two barrels of apples. This is the first variety to bloom in spring; on that account there is some danger in certain localities of injury to the blossom by frost.

Mulching around the roots of the trees with half rotted straw, above the snow during winter, has been tried to retard in early blooming, but without any apparent advantage.

Sweet Busnett is the name of another variety deserving of special mention on account of its fair cooking qualities, very little crab flavor being noticeable. Ten varieties of Russian apple trees carried fruit to maturity last summer. Blushed Calville, a summer variety, bore rather better than a bushel of apples of good size and of fair dessert quality, and were ripe on the 25th August. A weakness of this variety, more noticeable than in previous years, was its tendency to drop its fruit with every high wind.

The following fall varieties also carried full crops of large to extra large apples, suitable for cooking purposes:—Lieby, Ostrekoff, Silken Leaf, and Russian Gravenstein. The latter variety is, in quality, size, coloring and appearance, second to none of our eastern grown apples. One of the lessons learned among the apple trees the past summer is from the flat headed apple tree borer. Their work was first noticed last fall, when they worked considerable damage. They are detected by the borings or sawdust-like castings found at the root of the tree. When this is noticed the parts should be cut into with a knife until the borer is found.

Three years ago the first attempt at top-working the large apple on the crabapple was tried. So far as noted it has been a success. A number of the scions first inserted bearing heavily the past summer. The benefit of this work consists in the fact that top-working a half hardy scion on a hardy stock increases the hardiness of the scion. Such varieties of crabapple trees as Transcendant, Hyslop, Sweet Russet and Virginia, are congenial stocks, and make a firm union with the large apple.

Fortunately, we have now included among our fruit testing stations the Government pioneer farm at Dryden, and have forwarded them a good collection of hardy trees of various fruits, and we hope the results may be helpful to our friends in Southern Manitoba.

THE PEACH CURL.

FIG. 1630.—TREATED LEAF.

THE nature of this fungus and its life history, has been several times fully described in these pages, but it remains to instance another clear case of successful treatment of it by spraying. Mr. W. M. Orr, in 1898, was the first in Canada to try white-washing his peach trees in winter season with a view of preventing the curl. His success was very marked, and was given to the public in his annual report.

This spring, Mr. A. H. Pettit, of Grimsby, sprayed his large peach orchard, first in February, and then again in March, using for first application one peck of lime to 40 gallons Bordeaux mixture, and the second time, one half bushel. One row right through the orchard was left unsprayed —embracing nearly every variety. As the growth began the result became more and more apparent, every other row being free from curl leaf except the one unsprayed, on which the foliage was very considerably affected and the ground beneath was strewed with dead leaves, while under the others none could be seen. Numerous visitors studied effects of the treatment and were convinced of its effectiveness, and believe that, had the season being a wet one, the difference between the treated and the untreated trees would have been still more marked. Our engravings are taken from the leaves of the treated (fig. 1630.) and untreated (fig 1631.) trees.

FIG. 1631.—UNTREATED LEAF.

APPLE INSPECTION AGAIN.

THIS is a perplexing question, and no wonder we get so many opinions concerning its practicability. Parker* of Berwick, N.S., says "This is a question that has engaged the attention of this (N.S.) Association more or less for ten years, and is yet unsolved." In his paper before the Society he proposes XXX to denote the standard grade, to include "only perfect fruit, well developed, averaging in size, good in color, sound, free from blemishes such as rot, bruise or spot, possessing its own variety. The second quality "he says" shall be known as XX grade, which shall consist of good, well natured sound fruit, not worm eaten, though in size, form and color, it may fall below the standard grade" A grade above XXX he would denote as extra XXX.

These grades closely correspond with the grades proposed by us, under differ ent marks our A No. 1 corresponding with his XXX; No. 1 to his XX, and extra A No. 1 to his extra XXX. We think the marks we propose better because such marks as XXX have been so much abused, and the use of the grade marks proposed by us will not prevent any packer adding as many X's or other private marks as he chooses in addition.

So far then we all practically agree, but the President of the Nova Scotia Association objects to a minimum specific size for each grade, as applied to all varieties. He thinks No. 1 Spy and No. 1 Fameuse would be quite different True, but should *any* apple be called No. 1 that falls below 2¼ inches in diameter? And if no Crab, Lady apple or Swazie Pomme Grise would ever reach grade A No. 1, 2¾ inches in diameter, why not denote its excellencies with X's or some other special mark as is done at present? It would be very easy to make exception in the case of the three or four varieties to which the proposed grade sizes would not apply.

However, we might possibly yield in this, providing it be a rule to add a size mark to the grade mark, so that the buyer may know what he is buying. This would accomplish the same purpose, viz., of preventing fraudulent packing, giving a basis for inspection; and it would enable a distant buyer to purchase with confidence at a given price. Already for example, the writer has made a contract with an English buyer for a shipment of Northern Spys in this way, making certain prices for apples 2¼ inches in diameter or over, and a higher price for those 2¾ inches or over in diameter.

There is no difficulty in sizing apples, for if it is not convenient to use a Wartman grader, which is the first Canadian machine for sizing apples, one can get a number of sheets of heavy card board, and have holes of various diameters cut in the same. All apples that will *not* go through a 2¼ inch hole, for example, would go for size 2¼ or upwards.

We have just received from Ottawa some copies of the general inspection act, and find that sections 109 and 110 refer to apples, but in a way that makes the provisions quite a dead letter. The following is the text:—

FROM GENERAL INSPECTION ACT.

7. The said Act is hereby further amended by adding the following sections thereto:—

"APPLES.

109. In the inspection of closed packages of apples, the inspector shall open not less than one package in every five; and if the manner of packing is found to be fraudulent

*See report N.S., F.G.A. Association 1899, p. 121.

or unfair, then he shall open all the packages put up by the shipper of such package :

"2. Every package found to be fairly and properly packed he shall brand as 'No. 1 Inspected Canadian Apples,' or 'No. 2 Inspected Canadian Apples,' as the case may be, if fit to be so branded :

"3. The inspector shall also examine the varieties of apples submitted for inspection, and shall correct the nomenclature if incorrectly marked or if the name of the variety is not marked he shall cause it to be marked on the package :

"4. The inspector may charge a fee of ten cents for each package inspected by him, and such charge shall cover the cost of opening and closing the package.

"**110.** No. 1 inspected Canadian apples shall consist of well-grown specimens of one variety, of nearly uniform size, of good color, sound, free from scab, worm-holes and bruises, and properly packed.

"2. No. 2 inspected Canadian apples shall consist of specimens of one variety, reasonably free from the defects mentioned in class No. 1, but which, on account of inequality of size, lack of color, or other defects, could not be included in that class."

We propose that this be amended somewhat as follows :—

APPLES.

109. The Inspector, appointed for that purpose, shall have power to open any closed packages of apples intended for sale in home markets or for export, which are marked No. 1, A No. 1 or Extra A No. 1, and if, on examining one barrel in every ten of the lot being forwarded by any shipper, he finds them fraudulently packed, he shall have power to erase the grade marks, and to expose the name of the offender.

Every shipper of closed packages of apples is required to place his name and address either upon the inside or the outside of the same, and the inspector may detain from shipment, at the cost of the owner, any packages not so marked.

110. No. 1 grade of Canadian apples shall consist of well grown specimens of one variety of nearly uniform size, sound, reasonably free from scab, worm holes and bruises, properly packed and having a brand (marked on the head) showing the minimum size of the fruit contained.

2. A No. 1 Canadian apples shall consist of specimens of one variety, of fairly uniform size, of good color, sound and free from scab, worm holes and bruises and properly packed, and having the minimum size marked at the head along with the grade mark.

THE BLACK CURRANT.

THE fruit of the black currant is very valuable in its season, although the skin of the fruit contains essential oil—which renders it disagreeable to many persons—still the fruit is in much request for preserving and making wine. On the whole black currants are important objects of cultivation, especially in the neighborhood of towns, where the fruit, during the long period of season in which it is fit for use, is always in demand, and generally pays well for good cultivation. Having noticed quite recently in many districts of Shropshire the bushes of the black currant suffering from want of moisture, and unless supplied by rain or by hand (artificially), the fruit will be small and consequently will be more acid. My practical advice to those who would like to grow the fruit of the black currant well, and get the fruit large and good, is to mulch with long stable or farmyard manure, putting it over the top soil over the roots, and then water with pond or other water that has been exposed to sun heat, giving each bush or tree sufficient to moisten all the roots of the tree operated upon, say ten or twenty gallons.

MELONS AND THEIR CULTURE.

THE melon belongs to the order *Cucurbitaceæ* of which there are over three hundred species, most of which have long slender vines and tendrils by means of which they climb, but some have neither vines nor tendrils, and are bunchy and bush-like in appearance,

"The melon is an annual with palmately lobed leaves, and bears tendrils. It is monœcious, having male and female flowers on the same plant. The flowers have deeply five-lobed campanulated coroleas and three stamens. Naudin a French botanist observed, that in some varieties (e. g. of Cantaloups) fertile stamens sometimes occur in the female flowers."

It is a native of the South of Asia. It is found growing wild from the foot of the Himalayas down South to Cape Comorin, but is now cultivated in the temperate and warm regions of the whole world. It is excessively variable both in diversity of foliage and habit, but much more so in the fruit, which in some varieties is no larger than an olive, while in others it rivals the ponderous fruits of the gourd (Cucurbita Maxima). The fruit may be globular, ovoid, spindle-shaped, or serpent-like, netted or smooth skinned, ribbed or furrowed, various coloured externally, with white, green, or orange flesh when ripe, scented or scentless, sweet or insipid, bitter or even nauseous. Hence it is said to be "a most polymorphic species." It embraces all the numerous varieties of pumpkin, squash, vegetable marrow, gourds and melons.

Cucurbitaceæ embraces many varieties which are used in medicine; and chief among these is the Colocynth gourd, about the size of an orange, or as it is sometimes called, bitter apple, or bitter cucumber. The Colocynth of commerce is made from the dried pulp of that gourd, which is grown in Asia, Africa and Spain—the latter place supplying the largest quantity to the trade.

The species, Melon, of which we would speak is not a disagreeable medicine, but a delightful fruit, which is used in large quantities in nearly all warm countries, and grown as an expensive luxury by artificial means in the colder portions of our earth.

As already stated it came originally from Asia. It is supposed to have been brought from there to Rome in the 16th century. The origin of some of the chief modern races, such as the Cantaloup, etc., and probably the netted sorts is due to Persia and the neighboring Caucasian regions. It is supposed to have been brought to America by Columbus —so it should have become pretty well naturalized during these four hundred years. The date of its cultivation goes away back almost to pre historic times. It was one of the good things of Egypt for which the Israelites mourned in the wilderness. About 3400 years ago they said :—"We remember the cucumbers and the melons."

The melons raised in this country are chiefly of two kinds musk and Water melons with many sub-varieties of these. Probably the latter is more largely grown, because of its good keeping and shipping qualities; and certainly it is cooling and refreshing during the warm weather.

But we shall chiefly treat of the cultivation of the Musk melon as it is by far the finer of the two and perhaps

somewhat more difficult to grow to perfection.

Soil and Preparation.

The soil best adapted for their growth is a rich gravelly loam, or warm rich sandy soil with a well drained, or dry sub-soil.

It must be made very rich—no fear of the ground being too rich, if the manure used be not too hot or fiery. In the fall, dig into your land a large quantity of strong cow manure, or better still, if you are where you can get it, manure from a hog pen. In the following spring dig your melon plot over again, say about the end of April. Then in May prepare for sowing. There are two ways of planting followed—one in hills, and the other in rows. I prefer the row system because in that way you can have manure more evenly distributed under the plants.

Dig good deep trenches about seven feet apart, throwing the earth out to each side. Then fill into these trenches a large quantity of good horse manure mixed with old leaves. Throw on some soil and mix all with a fork. This will prevent the fermentation being too rapid, and by this means the bottom heat will be continued for a longer time, etc. Put a little finely pulverized guano or hen manure on top, and fill in earth on top of this about 4½ inches deep and make all fine and smooth with a rake. Your row will then be slightly higher than the level of the ground.

Sow your seed along the center of this drill, or row, about one inch deep, and about two inches apart. Don't sow too soon, as melons are very easily injured by frost. Wait till you see the leaves pretty well started on the trees, which of course will vary with the season, but will generally give a most reliable indication of the advancement of vegetation.

When your plants are up, look out for cut worms and other pests. When your plants have become strong, with five or six leaves, and are past the danger of worms, thin out, leaving the best plants about 15 inches apart. Then carefully remove the dry earth from about the stems and bring up some fresh moist earth from the sides and put this round the plants right up to the leaves, making up the row from both sides about 4 feet in width—a little lower at the plants than out from them—leaving the surface pretty rough. Keep down weeds, and water occasionally if the weather be very dry.

When the vines begin to run, nip off the main vine, as it seldom bears any fruit, and the strength of the plant will be thrown into the fruit-bearing vines.

When the runners stretch out, the roughness on the surface will help to steady them. Don't let them get twisted about, and turned over with the wind, better steady them with little pegs till they are long enough to reach out their little tendrils and take hold on each other with these wonderful hands. Keep the vines so spread that they will evenly cover the ground, and not be thick in some spots and thin in others.

Your plot of melons should be so situated as to get the sun all day. They will do even better if the land slopes towards the west, so that the soil will be well warmed by the evening sun, and so remain warm well on throughout the night.

Ripeness

When the musk melon is ripe the rich fragrance of the fruit will generally give warning, and generally the color changes, (but not always) and the stem will crack around where it joins the fruit, and the fruit will separate quite easily from the stem.

In regard to water melons none of these marks will *apply*. For it does not change color, become fragrant, nor separate any more easily from the stem. How then can you tell? By two very small things which are frequently overlooked, if you look closely where the fruit stem joins the vine you will see a very small leaf, not more than half an inch in length, and a small tendril just like what grows on other parts of the vine. When this little leaf and tendril dry right up then the melon is ripe and fit for the table.

All melons are better to be fully ripened on the vine. For lack of attending to this, many a tough insiped customer has to be dealt with that ought to have been free and luscious.

I have not treated of transplanting melon plants for I find that they do better to be sown just where they are to grow, etc.—A. McLaren, before Hamilton Horticultural Society.

SIZE OF THE APPLE BARREL.

THERE are several sizes of apple barrels in use in the United States and Canada, and it is certainly most desirable that uniformity be attained in this regard. The National Apple-Shippers Association of the United States have adopted the following size barrel, and have resolved not to buy or ship in any other: Head, 17⅛ inches; croe to croe, inside, 28½ inches; bilge, 64 inches, outside. This is about the same as our flour barrel, so much used in Western Ontario, but much larger than the usual apple barrel of New York State, and larger than the legal barrel of Ontario. The amendment to the Weights and Measures Act of Canada, as now proposed, provides slightly different measurements, but giving cubic contents nearly the same. The following is the proposed text:

1. On and after the day of one thousand eight hundred and ninety- , section 18 of the *Weights and Measures Act*, chapter 104 of the Revised Statutes, shall be repealed and the following shall be substituted therefor:

"**18.** All apples packed in Canada for sale by the barrel shall be packed either in cylindrical veneer barrels having an inside diameter of eighteen inches and one-third, and twenty-seven inches from head to head inside measure, or in good and strong barrels of seasoned wood twenty-seven inches between the heads, inside measure, and having a head diameter of seventeen inches and a middle diameter of nineteen inches, and such last-named barrels shall be sufficiently hooped, with a lining hoop within the chimes, the whole well secured with nails.

"2. Every person who exposes for sale, or who packs for exportation, apples by the barrel, otherwise than in accordance with the foregoing provisions of this section, shall be liable to a penalty of twenty-five cents for each barrel of apples so offered or exposed for sale or packed."

BLUE ROSES GROWN IN BULGARIA. The blue rose, which, with the black, has so long been a subject of horticultural research, has quite unexpectedly made its appearance in a continental garden. Kilanlik, in Bulgaria, whence the rarity is reported, is a district renowned for its attar of roses and consequently the flowers are grown on a very large scale. Samples of the soil where this rare plant is grown have been sent to the chemical laboratory of Sofia to be minutely analysed. It is known to be rich in lime, ammoniac, salts of copper and oxide of iron.

BUDDING performs the same duty that grafting does, the one done in Winter or Spring before the young buds have started, while the other is reversed, and can be done only when the subject is in a growing state, so that the bark peels readily from the wood.

Budding, as the name imports. is the insertion of a bud of one kind of tree into the bark of another. It is an expeditious way of increasing any improved variety of fruit to an almost unlimited extent, as every bud from growing shoots is, as it were, available, from which an independent plant can be grown. In this respect, it is similar to raising plants from cuttings, where, in many things, every eye may be made to produce a new plant. Grafting has to have two or more buds.

Without one or other of these methods, there is but one way of increasing many kinds of fruit, that of layering Hence, were it not for the methods of increase, fruit of improved kinds would be exceedingly scarce, whereas, by its means, any new apple, peach, pear, or the like, may be increased very rapidly.

In the old country much is done by budding or grafting in raising ornamental trees, roses, and other shrubs, and to a more limited extent by the nurserymen of this country. Even the florists find it to their interest to grow many kinds of roses this way now, as some fine kinds appear to do better budded or grafted on another kind as a stock.

Sometimes the object sought is to dwarf the growth, as for example, an ordinary apple worked on to a Paradise stock, itself a small growing kind, dwarfs the growth down to an ordinary sized bush ; so with pear on quince.

In other cases very superior fruits or

FIG. 1632.—BUDDING.

flowers are sometimes of weakly growth ; these worked on to the wilding of its kind increases its vigor, but preserves the character of the fruit.

In the apple, pear and peach, the stock usually used is the produce of the respective fruits raised from seed In the rose in Europe, the common dog rose, Manetti and other strong growers is the general stock. Any person having a vigorous climbing rose of the Queen of Prairie, can easily inoculate it by inserting buds of other choice kinds of rose.

The Time to Bud is when the bark will peel from the stock, and is in a half ripe state, the sort from which the bud is obtained being also in the same condition, the bud itself being fairly formed and plump and round in appearance. If budded early in the season, some things will push the bud into growth at once. The general practice is to bud so that the bud remains dormant until Spring, so that the bark will peel freely. Secondly a proper time ; not too early, when there is a little cambium, or mucilaginous cement between the bark and the wood, for the adhesion of the bud,—nor too late, when the bark will

not peel freely, nor the subsequent growth sufficiently cement the buds to the stock. Thirdly, buds sufficiently mature. Fourthly, a keen, flat knife, for shaving off the bud, that it may lie close in contact upon the wood of the stock. Fifthly, the application of a ligature with moderate pressure, causing the bud to fit the stock closely.

The stock and bud being in a vigorous growth, and in condition, an incision is made lengthwise through the bark of the stock at the right angles, forming the letter T. A bud is then taken from a shoot—each leaf having been cut a short distance above the bud as shown in our illustration. (Fig. 1633.) The bud is shaved off the scion an inch or inch and a half in length — with a small part of the wood directly beneath the bud. This wood is left in by the best budders in this country, but removed in the old—but their moist climate favors this better than ours. The edges of the bark are then raised a little and the bud pushed downwards under the bark. A bandage of bass, soft string or other substance is wrapped around, covering all but the bud.

FIG. 1633.

Rosarians generally use woolen yarn for string, as less likely to cut and wound the tender shoots. To prevent the bud drying up the leaf is cut, leaving but little exposed to wither — which would be fatal. Usually in ten days to two weeks the junction is sufficiently formed to sever the bandage. When in vigorous growth, if this is not attended to, the tie is apt to cut into the stock. An examination will readily show if the junction is formed, or if the ligature is cutting into the stock. (See Fig. 1632.)

If everything is in shape, in the Spring the stock is cut off a couple of inches above the inserted bud. This causes the bud to push. If on young stock, no other bud is to be allowed to grow, itself finally forming the tree or bush. If it is a fancy of inserting another kind into a growing bush or tree, then that particular branch will have to be given up to the new comer. —Prairie Farmer.

EXPERIMENTS IN ENGLAND WITH COLD STORAGE.

INTERESTING results have been attained from the observations of W. P. Wright, Superintendent of Horticulture of Kent County, on the cold storage experiments for fruits at the works of J. & E. Hall, Dartford, England The cold chambers were fitted with brine walls and cooled to any desired temperature by means of carbonic anhydride machines.

The fruit being placed upon tiers of galvanized wire shelves under three different conditions.

1. Exposed on the shelves.
2. Enveloped in grease-proof paper.
3. Surrounded or covered by cotton wool.

It was found that strawberries can be kept for three weeks in a temperature of 30°, but it was necessary to surround the fruit with cotton wool, or in the case of fruit in sieves, to place a pad of that material over the top. Without this precaution the fruit became dull and lost the fresh, marketable appearance, although perfectly sound.

Black currants shriveled after ten days' storage, but filled up and freshened when again exposed to ordinary temperature. The best temperature for this fruit proved to be 32°. Red currants remained sound for six weeks and retained their freshness for 16 hours after being taken out of the refrigerator. This fruit seemed to be best in a temperature of from 32° to 36°, and covered by paper to shut off currents of air. Cherries kept sound, fresh and clear for four weeks in a temperature of 30° when covered with wool. After that the fruit began to shrivel.

With all these fruits it was found that the best results were obtained when they were placed in storage in advance of dead ripeness. They should not be injured in any way.

The apples and pears tested were of the English variety, so that a description of these tests would not be of much value to American growers. The severest tests were of the early market varieties which would not keep under ordinary conditions of storage. Sound fruit of this sort generally came out in nearly perfect condition in February. The apples were divided in three different chambers, kept at 30°, 32° and 36° respectively. The lowest temperature did not prove harmful nor was any advantage derived from it. Of the dozen different varieties tested, 36° seemed to be the most suitable. Little difference was found whether the fruits were exposed, covered with cotton wool or grease-proof paper. The best result was from fruit not fully ripe and not bruised.

A dozen varieties of pears were tested, among them the Williams of England or the Bartlett of the United States. All kept satisfactorily, there being little choice between 30°, 32° and 36°. If anything a lower temperature for pears is better than for apples, although for all practical purposes the two fruits agree.

The plums of England and the United States are so much alike that the tests will be interesting here. Green gages kept sound for ten weeks, proving to be the hardiest variety. The popular plum of England, Victoria, remains sound nine weeks; the Golden Drop stood the test for eight weeks. The best temperature was found to be from 32° to 36°, although the plum does not do as well as other fruits in cold storage.

The tomato experiments were not completely successful, but the best temperature was found to be 36°.

Grapes covered with grease-proof paper stood the test for nine or ten weeks at a temperature of 32°.

The peach trials were rather conflicting, some remaining sound for two months at 32°, one variety rotting at 36°.

Mr. Wright says that cold storage for fruit growers on a small scale would not pay, but that the future probably would see in all large market centres chambers provided in warehouses for fruit.—Cold Storage.

AMMONIA FOR HOUSE PLANTS.—It is simply astonishing that amateurs succeed as well as they do with house plants, when they are so neglectful of fertilizing the soil. The simplest fertilizer for increasing the growth of plants is the household ammonia, which every housekeeper keeps at hand for kitchen or bedroom uses. For the plants add three drops to a cup of water, and use to water the plants about twice a week. For a larger quantity twelve or fifteen drops to a quart of water.

STOCKS FOR BUDDING.

CHERRIES are generally worked on Mazzard stocks. All varieties are readily worked upon it. When dwarf trees are desired the Mahaleb is used as a stock. This stock, which is imported, is adapted to heavy clay soils. Prunus Pennsylvania and Prunus pumila have been used to some extent. The former is the common wild red, pin or bird cherry; the latter the dwarf or sand cherry. Cherry stocks are worked both by budding or grafting. Budding is the common method. The stocks should be in condition to work the season they are transplanted, the second summer from the seed. Any that are too small for working may be allowed to stand until the following year. In the West, where great hardiness is required, the varieties are crown-grafted on Mazzard stocks in winter. Yearling stocks are used and the scions are from six to ten inches long. When planted, only the top bud should be left above the ground. The scions produce trees on their own roots.

The budding season for pears usually begins late in July or early in August in the North. If the stocks are small they may stand over winter and be budded the second year. Pear trees do not succeed well when root grafted, except when a long scion is used for the purpose of securing own-rooted trees. Dormant buds of the pear may be used upon large stocks early in spring, as upon the apple, and buds may be kept upon ice for use in early summer. Pears are dwarfed by budding them upon the quince. The Angers quince is the best stock. The pear can also be grown upon the apple, thorn and Mountain ash.

Plums are worked in various ways, but ordinary shield-budding is usually employed in late summer or early fall, as for peaches and cherries. In the North and East the common plum is usually worked upon stocks of the same species. The Horse plum is a common stock. St. Julien and Black Damas are French stocks in common use. The Myrobolan is much used in California for standards, but in the East it makes dwarf trees. Plums are sometimes worked upon peach, almond and apricot stocks, according to locality. Japanese plums are worked upon peach, common plum or natives, preferably Marianna. Prunus Simoni works upon peach, common plum, Myrobolan and Marianna.

The peach is perhaps the easiest to propagate of all northern fruit trees. Peach trees are always shield-budded. Grafting can be done, but as budding is so easily performed, there is no occasion for it. The peach shoots are so pithy that in making scions it is well to leave a portion of the old wood upon the lower end to give the scion strength. Peaches are nearly always worked upon peaches in this country. Plums are occasionally employed for damp and strong soils. Myrobolan is sometimes used, but it cannot be recommended. all plums dwarf the peach more or less. The hard-shell almond is a good stock for very light and dry soils. The Peento and similar peaches are worked upon common peach stocks.

Apple stocks are either grafted or budded. Root-grafting is the most common, especially in the West where long scions are used in order to secure own-rooted trees. Budding is gaining in favor eastward and southward. It is performed during August and early September in the Northern States, or may be begun on strong stocks in July by using buds which have been kept on ice. Stocks should be strong enough to be budded the year they are transplanted. — Prof. Bailey in American Gardening.

THE NEW PEACH SCALE.

(*Diaspis amygdali Tryon*).

FIG. 1634.—PEACH SCALE, C MALE, B FEMALE.

How to detect it.—This scale is readily distinguished from the San José in that the female is a little larger, of a lighter gray color, with the elongated exuvial point ridged and located at one side of the centre, and the male is smaller, elongated, with parallel sides and white. The exuvial point is similar to that of the female, but located at the anterior end. A tree badly infested has a white-washed appearance from the color of the male scales. Where only females occur, however, a grayish brown appearance is produced.

It is the habit of these insects to cluster about the trunk and the lower parts of the larger limbs of a tree.

The original home of this insect is probably either the West Indies or Japan. From its probable West Indian origin it gets one of its popular names, "West India" scale. It is now known to exist in the United States, at Washington, D. C.; at Los Angeles, Cal.; in one locality in Ohio; at Molina, Fla.; at Bainbridge, Thomasville, Irby and Ashburn, Georgia. The case at Irby, Ga., involves two peach orchards; one of about 7,000 trees and the other 25,000 trees. About 10,000 trees have been utterly destroyed at this place by this scale.

It attacks the plum, peach, apricot, cherry, pear, grape, persimmon, and a few other plants.

Treatment.—The winter treatment for this insect is about the same as that for the San José scale. The females pass the winter in the mature and partially mature state, and can be killed by the twenty per cent. mixture of kerosene and water, or by the whale-oil soap treatment at the rate of one pound dissolved in one gallon of water. In Georgia there are three or four broods from eggs, which appear at more or less regular intervals, the first appearing about the middle of March, if the season is favorable. These broods should be watched for and ten per cent. kerosene or whale-oil soap at the rate of one pound to four gallons of water should be applied at the time of their appearance.—Georgia Entomological Bulletin, No. 1.

Flower Garden and Lawn.

"OUR GARDENS."*

THIS new book by Dean Hole, on "Our Gardens," is a charming work. Printed on the best of paper, in faultless letter-press, illustrated by elegant and costly colored garden scenes, it captivates the lover of the beautiful in nature the moment he opens it.

The book combines in a wonderful way the amenities of the garden with the latest information on gardening and landscape art. Some of the headings of chapters will show what may be expected in the book by our readers: Ch. v, On the formation of a garden; ch. vi, The component parts of a garden; ch. vii, The herbaceous border; ch. viii, The rose garden; ch. ix, The rock garden; ch. x, The water garden; ch. xi, The wild garden; ch xii, The town garden.

The following selections from chapter v, on "The formation of a garden," will interest our readers and give a fair idea of the style of the writer:

"There was a time when the architect was an obtrusive and persistent poacher; when, not content with his edifices of brick and stone, his terraces, pagodas, colonnades and cupolas, urns and tubs in front of his houses, he insisted on a repetition of walls, towers, domes, and spires done elsewhere in evergreen shrubs: and when it was written by one of the brotherhood that he should not trouble his readers with any curious rules for shaping and fashioning of a garden or orchard, how long, broad, or high the beds, hedges, or borders should be contrived, every drawer, embroiderer—nay, almost every dancing-master, may pretend to such niceties, in regard that they call for very small invention and less learning. Now we shall be justified in associating such an utterance with 'an out-patient of a lunatic asylum' (the description given to me many years ago, by a sarcastic rural policeman, of a neighbor whom he despised), but then, when the gardeners themselves followed the same straight lines in their walks, copied the same fantastic forms in their knots and beds, which squirmed and wriggled like the poor worm pricked by the hook, when they mutilated vegetation, and gloried in their shame, there was too much truth in the satire. The garden was regarded as a mere appendage to the house, and it was a condescension and work of supererogation on the part of the architect to superintend its formation."

*By S. Reynolds Hole, author of "A Book about Roses," "Memories of Dean Hole," etc. London. J M. Dent & Co.; New York, McMillan & Co. Price $3.00.

"The idea of superiority is not extinct. I have heard complaints from builders that we gardeners trespass upon their work, and disfigure it with our ampelopsis, wistaria, jasmine, roses, and ivy; but no one outside their fraternity seconds the proposition. Has not the Great Architect of the Universe clothed His mountains and rocks with moss, and lichen, and flowers? And yet within a few years an architect has informed us that a garden should be laid out in an equal number of rectangular parts; that everything therein should be simple, formal, and *logical!* and that he should have no more hesitation in applying the scissors to his trees and shrubs with a view to their transformation into pyramids and peacocks, cocked hats and ramping lions, than he should experience in mowing his grass. Should this gentleman secure the sympathy of the public with his rectifications of Nature, it will only remain for the Government to invite contracts for the fulfilment of the Quaker's suggestion that the world should be painted a good, cheap, universal drab."

"There must be in every garden—The grace of *Congruity*. There must be unity without uniformity, a pleasing combination not only of separate parts of the garden, but of the garden itself with the scene around. Every instrument in the great orchestra must be in tune."

"I have watched with great interest attempts to improve Nature. I remember an under-gardener, who carved flowers with his pocket knife out of turnips, chiefly the ranunculus, the camellia, and the tulip, and colored them with stripes and spots of the most gorgeous hues; and I recall a day when, passing by the potting shed, in which he was exhibiting his splendid achievements to a friend, I heard him say, 'They whacks natur', don't they, Dobbs?' And Dobbs replied, 'They whacks her ea-sy.'

"Congruity means the adaptation of Art to Nature, the conformity of a garden with its environs, the study of the soil."

"'Et quid quaque ferat regio et quaque recuset.' It means not only the selection but the setting of the jewels, not only the painting of the picture, but the placing in the frame."

"This then should be the primary endeavor to the true gardener, to collect all the most beautiful specimens which he can obtain of trees, and shrubs, and flowers, and to arrange them with all the knowledge which he possesses of their habit, colour, and form, in accordance with the simplicity, the graceful outlines, the charming combinations of the natural world beyond,

'When order in variety we see,
And where, though all things differ, all agree.'

Working under these rules, copying this model, obeying Pope's edict,

'First follow Nature, and your judgments frame,
By her just standard, which is still the same,'

he will make but few mistakes, and these will suggest their own rectification, whereas all the endeavors of wealth and self-conceit to follow their own imaginations, without regard to these immutable laws, and to obtain the admiration of their neighbors by the mere costliness of their novelties, or the heterogeneous locations of their plants, inevitably fail. Again and again I have seen such results of lavish expenditure and stolid arrogance as have almost induced ophthalmia and softening of the brain, with an intense longing for the wings of a dove; whereas the same eyes have gazed with a delight, which could not tire, in many a garden where the means were scanty, but the love was large."

Of course there must be variety. It might be inferred from an inspection of the majority of our gardens, that no novelty had been introduced into this country for the last sixty or seventy years, and that straight walks through huge clumps of evergreens, chiefly laurels, and their boundless continuity of shade, left nothing to be desired. The true gardener will thankfully avail himself of all the beneficent gifts which reward his patient study and science in the production of new varieties.

In every garden there must be, wherever there may be, seclusion, quiet retreats for for rest and retirement, for contemplation made. Our garden should be our Jerusalem, "the vision and possession of peace." I must have a place to flee unto, when I know that the great landau of the Wopperton-Wickses is in my avenue, because one of their gigantic horses, a little touched in the wind, is loudly expressing his disapproval of a sudden rise in the ground, and because I catch a glimpse the trees of the gorgeous liveries, the cockades, and the calves, and the elaborate amorial bearing of the Woppertons and the Wickses mixed.

It is from these dissonant intrusions which confuse the brain, impede the digestive organs, and turn the tranquil waters into seething billows, like the storms of an Italian lake, that we would provide our haven of refuge. I would not make a single garden, which was worth seeing, into "a place of selfish solitude." There is rarely need to ask the question now,

> "Why should not these great squires
> Give up their parks some dozen times a year,
> And let the people breathe?"

As a rule, where decent behaviour can be assured, the most attractive of our English homes are open to the public. At frequent intervals, the true gardener is never more happy than when he has the time for converse with those who can appreciate his work. What I mean is that all gardens should be secluded from supervision, and I think that even of show days there should be some small sanctuary unpolluted by the bag of the sandwich, the peel of the orange, and the cork of the ginger-beer.

THE MATTER OF NAMES.

HOW many gardens we see that contain fine and rare varieties of plants, from which the labels have been lost. How often a named collection of roses we shall say, is planted with the correct labels duly affixed, and after the growing season and the erasing effects of the winter, the labels which came from the nursery, convey no more meaning to the planter than the Egyptian hieroglyphics do to the ordinary scholar. You say, "The nurseryman should supply more lasting labels," but when you consider the short and busy season that is allotted to the nurseryman to get his orders dug and packed, it is obvious that he must use labels that are most quickly and conveniently written, and for this reason a pine label is written with pencil and wired to one of the branches.

The experienced nurseryman distinguishes different varieties of fruit and shrubbery by their growth, and to the experienced florist the leaves, habit, etc., of most roses, geraniums, fuchsias and countless other plants, silently proclaim the names of the particular varieties. It requires years of experience to become thus proficient in names, and it

is surely not asking too much that the planters preserve the names more carefully. A gentleman buys and plants a quantity of shrubbery, all correctly labelled. Oh! he will say, what need of me to preserve these dreadful Latin names and jawbreakers, why does not the nurseryman give his plants English names? and so in the course of the seasons the names one by one become lost. By and by one flowers, it is different from the rest, it is different from anything in the neighborhood perhaps, some admirer inquires the name, the planter himself is seized by the same desire, but the label is lost and it entails perhaps years of enquiry before the last one is renamed.

It is a pleasure indeed to visit such grounds as those at Queen Victoria Park, Niagara Falls, where trees and shrubs from so many countries are growing and apparently flourishing. Mr. Cameron, the head gardener, readily tells the name of any specimen in the collection, but says he intends to furnish all with conspicuous labels giving the correct botanical name, also the common or local name, for the information of the public. For herbaceous plants, or for plants like roses, that are pruned heavily each year, good stout cedar labels are the best, 20 in. long, 2 in. wide and 1 in. thick are the usual dimensions, point these, plane them on one side, rub the smooth surface with some light colored paint and write the name heavily and boldly, these labels can be read for several seasons. For permanent names for trees, shrubs, etc., the best thing we have seen is a very thin piece of soft sheet copper, on which the name is written heavily with any sharp pointed tool, and as it is fastened to the tree with copper wire, there is no reason why it should not be legible for a lifetime.

Hamilton. WEBSTER BROS.

SNOWDROPS.

NOW that we are all planting bulbs let me put in plea for the snowdrop. What other bulb have we that is so pure and dainty, so brave and early, so easily cultivated? A little colony of the bulbs, planted in a sheltered nook will often surprise the owner with a handful of sweet, white flowers in January, notwithstanding the old hymn that

"The snowdrop in purest white array,
First rears her head on Candlemas day."

Scillas, chionodoxas, crocus and aconite bloom about the same time as the snowdrop and might be planted with it for variety, but I shall always want one little colony that is all white. Elwesii giant is the finest of the snowdrops. The bulbs need only to be planted and then let alone. Under ordinary conditions they soon naturalize themselves. The individuality of the snowdrop—originality, if you will—has made it the subject of many poetical references. All are not equally accurate, however. Tennyson evidently noted the small white flowers, for he wrote:

"Pure as the virgin tint of green,
That streaks the snowdrop's inner leaves."

For the snowdrop is not pure white as some poets would have it. They, I fear, love it better than our gardeners. To find snowdrops in Carolina gardens is the exception rather than the rule.—Vicks Magazine.

A FEW POINTS ON ROSES.

FIG. 1635.—ANNE DE DIESBACH.

YOUR Toronto correspondent asking for a list of hardy roses places no easy task upon a Canadian rose grower, by her special requirement that they must have fragrance This requirement very much hampers the selection and bars out many of our finest appearing sorts which may be classed as hardy. There are, in fact, but a limited few among the fragrant varieties that can be classed as hardy enough for our climate north of Hamilton.

Permit me to digress for a moment to say that your correspondent, M. E. B., in the July number, testifies—together with a considerable number of private inquiries which I have received through the post on the same subject—to the gratifying interest that is taken in rose culture in this splendid province of ours. I had no idea that so many, even beyond our province, were looking for the fulfillment of that promise which I made in the December number of the HORTICULTURIST, to give a gilt edge list of really hardy roses in time for spring planting. I had to answer each one, as I must now explain to M. E. B. that I feared to give a list during the awfully severe winter lest there might not be many or any of those in existence, when the spring opened, which I might have named. And it is well that I did fear and act cautiously, for the past winter has compelled me to reverse my list.

Assuming that the climate at Toronto is only a trifle more severe than that at Hamilton, I will endeavor to give a list subject to my latest experience of "Our Lady of the Snows," having regard as far as possible to the requirement named by your Toronto correspondent. I cannot, however, get a very dark, real hardy rose, with fragrance, to take the place which must be given to Baron de Bonstetten, nor a next in shade to substitute for Gen. Jacqueminot, which is only slightly fragrant. For fragance in the very dark shade Jean Liabaud will surpass the Baron de Bonstetten, but it is not so hardy nor quite so strong a grower. Then comes in order Alfred Colomb, with the only fault that it sometimes lacks in vigor and does not fully open all its blooms. It should, however, do well at Toronto. Next comes Francois Levit, Francois Michelon, slightly tender, Baron Provost, Leopold Premier, slightly fragrant, Duke of Edinburgh, Magna Charta and Anne de Diesbach. This brings us into the lighter shades and we

have no choice except we depart from the hardy lines and take Mad. Gabriel Luizet, which is worth all the trouble of protecting. I lost all my bushes root and branch last winter, under 35 degrees below zero, but intend to set out half a dozen plants again this fall. For a white rose there is none that will take the place of Mad. Plantier, and there does not seem to be much demand for a white out door rose. Mrs. J. S. Crawford is a charming rose, so is Ulrich Brunner, but neither is hardy. Dinsmore is not a good rose, nor are several of those named by Mrs. Hoskin suitable to our climate.

T. H. RACE.

Mitchell, July 18th.

IMPORTED BULBS AND THEIR CULTURE.

IMPORTED bulbs, or bulbs of foreign growth, which have met with greatest favor, and are perhaps the most suitable for mid winter flowering are: Hyacinth, Narcissus, Tulips, (Lilium Harrisii or Bermuda), *Easter lily*, Lilium longiflorum, Freesia and Crocus.

These are imported in large quantities between July and November from France, Holland, Germany, Bermuda and Japan.

The Black Calla or Arum Sanctum may also come under this head, as it is an importation from Asia Minor, but the Calla lily or White Calla is a production of California.

Bermuda freesias are perhaps the earliest to appear on the market, some of which, grown this year, were with us as early as June 20th, these were followed a few days later by L. Harrisii, Roman hyacinths from Aug. 5th to 10th; narcissus, Aug. 20th; hyacinths, tulips and other Dutch bulbs, Sept. 5th to 10th; a full supply of lilies during October, with Hamburg lily of the valley pips later, or about Nov. 5th to 10th.

Were I asked to name the most popular of these bulbous plants, or the one for which there is the greatest demand I would have to name the hyacinth; therefore, I shall confine my remarks to this special bulb, and feel, should these notes prove helpful to any readers of THE HORTICULTURIST, I will be thoroughly repaid, and may, at a future date, give a short note on the cultivation of the others. As a rule, we may say that bulbs require a rich loam soil, to which about one-fourth its bulk of sand has been added. In the culture of the hyacinth I would suggest a liberal addi tion of leaf soil, to fibrous loam, sharp sand and well decayed cow manure, it is important that the same be thoroughly mixed and allowed to stand some time before use.

Roman and Dutch are the two important classes by which hyacinths are known, Romans being the most used for forcing.

When forced, this variety may be brought to bloom between the 15th and 20th of December. Dutch hyacinths are commonly grown for bedding and decoration, and are not forced to any extent for their flowers. When cultivating the hyacinth in pots, leave the top of the bulb a trifle exposed and let the soil be moderately moist.

The pots should be placed outdoors on a bed of wet ashes, covered with six inches of the same material and left exposed to the weather. When the bulbs are well rooted and about an inch of top growth has been made they may be removed indoors, to force; first into a

subdued light until the blanched foliage has attained its healthy green color and then to a sunny situation.

Abundance of air and plenty of water at the roots is necessary for early well developed flower spikes.

A dry or frosty atmosphere, or a draughty situation, will cause the flower buds to shrivel. Force gently in a temperature of about 70 degrees.

If you prefer finely developed trusses of rich colors to early flowers, the hyacinth should not be forced, but left longer outdoors to develop and then removed to a mild temperature like that of a sitting room window, where it will also get the most sunlight.

When cultivated in glasses the base of the bulb should at all times just touch the water in which a few pieces of charcoal have been placed.

Keep in a cool, dark place until there is an abundance of root growth, they can then be gradually admitted to the light until they are placed in the sunniest situation. Avoid a too dry or frosty atmosphere.

Bulbs that have flowered in water are of little use, and results of any account can be had only when planted out of doors.

When done flowering cut down the flower stalk and continue watering, allowing the leaves to return their nutriment to the bulbs. When the leaves have become withered the bulb should be placed in a sunny situation for a week to dry, and then placed in dry sand for next season.

Quite often bulbs of the second year's growth, or those which have not attained a sufficient supply of roots before being admitted to the light, will put forth their buds away down among the leaves and refuse to elongate their flower stalks as they ought to, which is disappointing indeed.

If you observe a tendency in this direction make some cones of thick paper and invert over the plant, cut off the apex of the cone making a hole about an inch in diameter for admission of light. The buds will reach up towards this opening in their eagerness to get to the light, and in this way the stalk can be made to lengthen itself properly. While hyacinths are in bloom it is well to remove them from direct sunlight as the flowers will last much longer in a cooler temperature. In conclusion, I might add that the bulb reports for this season are not at all promising, especially from Dutch and French growers.

Dutch growers will consider themselves quite fortunate if their yield amounts to half their production of former years, the larger sized bulbs will, no doubt, advance considerable before the season closes.

DORLAND COLLIER

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE APPLE CROP in Western New York is reported to be about one-half a full crop.

THE OFFICIAL REPORT of the Annual Fruit Growers' Meeting of Prince Edward Island for 1898 is at hand, and proves clearly that the people there are wide awake to their interests, and are planting apple orchards quite freely, in view of the excellent results obtained from their first trial shipment.

AT the recent great International Horticultural Exhibition at St. Petersburgh, the Wiboltts seed establishment in Nakskov, Denmark, was awarded the highest prize, viz., the largest silver medal for Danish grown cauliflower and cabbage seed.

RASPBERRY PULP. — A letter from Harrison Watson, Imperial Institute, our Dept. of Agriculture, give some encouragement to ship raspberry pulp this season. The old country crop is very short, owing to drouth, and now is the most favorable time to forward some cases for a thorough trial of this industry. We hope our Committee will make preparations for this, and give us a complete and reliable report of the prospects of the trade, because, if a success, it would help the price of the fresh fruit in our country.

THE WICKSON PLUM.—On the 21st of July we received a fine sample of this plum, from Mr. W. E. Wellington who has so much confidence in it that he has planted it quite largely to grow the fruit for profit. It is the largest of the Japan plums, a cross between Kelsey and Burbank, and is of such a fine bright red

color that it surely would sell like "hot cakes" in the market. The sample sent us measured 2 inches in diameter, the flesh was amber yellow, tender and juicy, and of very agreeable flavor. It will be remembered that this plum was originated by the eelebrated Luther Burbank, of Santa Rosa, California.

THE GREEN FRUIT WORM, *Xylina antennata*, was very abundant in Ontario orchards during the months of May and June, and did much destruction to

FIG. 1636.—

the young fruit, eating large holes in the sides of many of the finest samples. In 1896 a bulletin was issued by Prof. Slingerland, of Cornell University, on this worm. It was calcuated that in that year, 25 per cent. of the apples in New York State were ruined by it. The insect was first noticed in Missouri and Illinois in 1870, eating holes in the fruit, and in 1877 they appeared in large

FIG. 1637.—

numbers about Lockport, N. Y.; on one young pear orchard 45 per cent. of the fruit being injured. Collectors have found the moths in widely distant districts in Canada and the United States, so that they have now become widely distributed.

MR. SLINGERLAND SAYS: During the first week in June most of the caterpillars get their full growth and then burrow into the soil beneath the trees to a depth of from an inch to three inches. Here they roll and twist their bodies about until a smooth earthen cell is formed. Most of them then spin about themselves a very thin silken cocoon; some spin no cocoon. Within the cocoon or the earthen cell, the caterpillar soon undergoes a wonderful transformation which results in what is known as the *pupa* of the insect. Most of these insects spend about three months of their iife in the ground during the summer in this pupal stage. Some evidently hibernate as pupæ, and thus pass nine months or more of their life in this stage. Usually about September 15th, the moths break their pupal shrouds and work their way to the surface of the soil. Most of them emerge in the fall before October 15th, and pass the winter as moths in sheltered nooks; some evidently do not emerge until spring. Warm spells in winter sometimes arouses a few of them from their hibernation.

During the first warm days of early spring, all the moths appear, and doubtless the mothers soon begin laying eggs. No observations have been made on the eggs or young caterpillars in the North, but in a newspaper article published in the South in 1872, it is stated that the eggs are deposited in the spring on the underside of the leaves. They hatch in a few days, and the young worms begin at once to eat the foliage, or the fruit, or both.

There is thus but one brood of these green fruit worms in a year. They work mostly in May, pupate in the soil in June, live as pupæ during the summer and sometimes all winter, and most of the moths emerge in the fall and hibernate, laying their eggs in the spring.

THE BEN DAVIS APPLE AND THE KIEFFER PEAR. — Considerable discussion is being carried on in American papers regarding the merits of these two fruits. Some condemning them wholly because of their poor quality, and others claiming that they have great merits. W. H. S. says in the Rural New Yorker:

"The Ben Davis apple, as grown in northwest Missouri, is good in its season. One reason why it is so often condemned is that it is put on the market as early as October as an eating apple, when in fact it is not usually fit to eat before the middle of January. It looks good at any time, is bought out of season, then condemned. I consider the Ben Davis apple as a fairly good eating apple in its season, that is, from January 20 and after, and would consider that my Winter supply of provisions was not complete if I dld not have a good lot of Ben Davis in my cellar. After they get good, I notice that they are usually selected first when brought out with other apples, both by my own family and by visitors. Try some northern Missouri Ben Davis next year, but do not expect them to be good until their time comes.

"As to the Kieffer pear, my trees have been bearing for a number of years. When properly ripened after being left on the trees as long as is safe from frost, they get mellow to the core, are juicy and good, and while they are a little coarse, the flavor is very fine. Last year, I had a surplus for the first time, and all were sold at the house at $2 per bushel, and many were called for after all were gone, so I conclude that there are others who like them. Perhaps climatic conditions have something to do with both of these fruits; but as grown here, both are good in their season, and both readily sell at the highest price, which goes to prove that many people like them."

ONTARIO FRUIT EXHIBIT AT PARIS.— Mr. A. McD'Allan, Supt. of Horticulture for Canada at the Paris Exposition of 1900, is busily engaged in planning out his work of securing a a creditable exhibit of Canadian fruits. He estimates that at least 1,000 bottles should be allowed our province for tender fruits, to be put up this summer. Then in the autumn many varieties of our best apples, pears and grapes are to be sent forward and held in cold storage at Paris. In this way a creditable exhibit can be made from the very beginning.

The object is to represent the fruit-growing interests of Ontario as a whole, and every part of the province will be invited to participate. The plan is to utilize the Ontario Fruit Grower's Association, asking each director to make such contributions as would best represent the agricultural division he represents. He will invite the co-operation of the affiliated Horticultural Societies, whose exhibits will be credited to the Society, and individuals contributing will also receive full credit The fruit experiment stations will also be invited to share in this work, and will be fully represented at Paris with the special fruits which they grow.

In this way it is hoped that Ontario may be well shown to be a grand fruit growing country, and may win the attention of many colonists; it may be also that special business openings for the

sale of our fruits will result for the general good. We presume that similar schemes will be planned in the other provinces.

We give a list of the agricultural divisions in Ontario, with names of directors, experimenters and secretaries of affiliated societies,

DIVISION I.—Stormont, Dundas, Prescott, Glengarry.
Director.—W. A. Whitney, Iroquois.
Horticultural Society.—Iroquois, W. J. Forward.

DIVISION II —Lanark, Renfrew, Carlton, Russell, Ottawa.
Director.—R. B. Whyte, Ottawa.
Horticultural Society.—Arnprior, Geo. E. Neilson.

DIVISION III.—Frontenac, Leeds, Grenville.
Director.—Geo. Nicol, Cataraqui.
Experimenter.—Harold Jones, Maitland.
Horticultural Societies—Brockville, Geo. A. McMullen; Cardinal, E. E. Gilbert; Kemptville, T. K. Allen; Smith's Falls, W. M. Keith.

DIVISION IV.—Hastings, Addington, Lennox, Prince Edward.
Director.—Wellington Boulter, Picton.
Experimenter.—W. H Dempsey, Trenton.
Horticultural Societies.—Belleville, W. J. Diamond; Napanee, J. E. Herring; Picton, W. T. Ross; Stirling, Davis Sager; Trenton, S. J. Young.

DIVISION V.—Durham, Northumberland, Victoria.
Director.—Thos. Beall, Lindsay.
Horticultural Societies.—Campbellford, E. A. Bog; Cobourg, H. J. Snelgrove; Lindsay, F. J. Frampton; Millbrook, W. S. Given; Port Hope, A. W. Pringle.

DIVISION VI.—Ontario, Cardwell, York, Peel.
Director.—E. C. Beman, Newcastle.
Experimenter.—R. L. Huggard, Whitby.
Horticultural Societies.—Whitby, R. L. Huggard; Brampton, H. Roberts.

DIVISION VII.—Wellington, Waterloo, Wentworth, Dufferin, Halton.
Director.—M. Pettit, Winona. *Vice-President*, W. M. Orr, Fruitland.
Experimenters.—M. Pettit, Winona; A. W. Peart, Freeman.
Horticultural Societies.—Freeman, W. F. W. Fisher, Hamilton; J. M. Dickson, 22 Bruce St; Orangeville, Wm. Judge; Oakville, W. W. Paterson; Waterloo, J. H. Winkler.

DIVISION VIII.—Lincoln, Niagara, Welland, Haldimand, Monck.
Director.—A. M. Smith, St. Catharines.
Experimenter.—M. Burrell, St. Catharines.
Horticultural Societies.—St. Catharines, W. C. McCalla; Grimsby, E. H. Read; Hagersville, S. W. Howard; Port Colborne, A. E. Augustine; Niagara Falls, T. J. Robertson, Queen St.

DIVISION IX —Elgin, Brant, Oxford, Norfolk.
Director —J. S. Scarff, Woodstock.
Horticultural Societies.—Paris, Gordon Smith; Simcoe, Henry Johnson; Port Dover, W. J. Carpenter; Woodstock, J. S. Scarff.

DIVISION X.—Huron, Bruce, Grey.
Director.—J. I. Graham, Vandeleur.
Experimenters.—A. E. Sherrington, Walkerton; J. G. Mitchell, Clarksburg.
Horticultural Societies.—Durham, Wm. Gorsline; Seaforth, C. W. Papst; Kincardine, Jos. Barker; Meaford, A. McK. Cameron; Thornbury, A. W. Walker, Clarksburg; Owen Sound, A. McK. Cameron.

DIVISION XI.—Perth, Middlesex, London.
Director.—T. H. Race, Mitchell.

DIVISION XII.—Essex, Kent, Lambton.
Director.—A. McNeill, Walkerville.
Experimenter.—W. W. Hilborn, Leamington.
Horticultural Societies.—Chatham, Geo. Massey; Windsor, A. W. Joyce; Leamington, E. E. Adams.

DIVISION XIII.—Algoma, Simcoe, Muskoka Parry Sound.
Director.—G. C. Caston, Craighurst.
Experimenters.—G. C. Caston, Craighurst; S. Spillett, Nantye; Chas. Young, Richard's Landing.
Horticultural Societies.—Midland, Miss M. Tully; Orillia, C. L. Stephens.

WILD MUSTARD is one of the most troublesome weeds the Canadian farmer has to destroy, because it grows up and ripens with his grain crop and can only be got rid of by pulling it out one stalk at a time. Doherty, of O. A. C., Guelph, has tried spraying with different strengths of iron sulphate and those of copper sulphate on six plots. The application of 2 per cent. copper sulphate was entirely satisfactory, completely destroying the mustard and not injuring the oat crop in which it was growing.

Question Drawer.

Apple Trees Dying.

1101. SIR,—I would like to have your advice as to what to do for my apple trees. The leaves are all turning brown and they are dying by the dozen. Most of them were planted four years ago and have done well; they are mostly Yellow Transparents and healthy. Duchess and crab apples are not affected so bad. I thought the leaves faded off a little unnatural last fall, they have not looked very healthy all spring; the weakest of them dying first. Now the whole orchard of 150 trees has a dusty brown shade, with the leaves curling up. I thought possibly it was the wet season, as part of the orchard is rather wet clay, but the trees on the dry light soil are going now as well as the others. A few of them have bark loosening on the south side from sun scald, but most of them have real healthy trunks. I have not done any spraying. What do you think is causing it, and what remedy can I apply?

L. LOVE.

Port Sandfield, Muskoka.

We fear there is no remedy for the trouble affecting your apple trees. The sample sent us has the appearance of apple twig blight, which has been a very wide scourge this season. It may, however, be the result of the recent severe winter which has injured the roots of orchard trees, especially of the peach trees, in such a large area. Strange to say, the vitality stored up in the tree enables it to put forth leaves in the spring, and even form some fruit, but alas, in time the enfeebled condition of the roots soon begins to show itself in a dead or sickly top, and the tree is past recovery. If the evil is wide spread, this latter would be the explanation; if only a few trees, it is probably twig blight.

Fruit in Cape Breton.

1102. SIR,—I am sending you herewith, by parcel post, a box containing two Northern Spy apples; a small vial containing beetles which I picked off my pears last autumn, and a few withered fruit spurs from a pear tree—the latter I took off the tree to-day. When the blossoms dropped off the tree the leaves on the fruit spurs withered up and are still clinging to the twig, while the other leaves on the tree seem to be perfectly healthy.

Will you kindly say what you think of the quality of the apples? What are the beetles? Are they injurious to the pear? And what is the trouble with the pear tree?

Plums will be a good crop here; apples fair only. The late cold weather of May and June probably was the cause of the fruit not setting well.

Referring to a recent article in the HORTICULTURIST regarding Prunus Pissardi, I have one ten years planted which is beginning to show signs of failing health and is becoming rather unsightly, but it was a beautiful tree for several years.

D. S. MCDONALD.

Glendyer Mills, C.B.

We should suppose from your description that your trees are affected with the pear blight, which often begins with the fruit twigs.

The samples of Spy apples are in a wonderfully good state of preservation and if they have only had ordinary storage, their condition would go to show that apples with our correspondent are better keepers than those grown in Ontario.

✱ Open Letters. ✱

The Plum Crop.

SIR,—The plum crop is a total failure with me. Apples are very, very light, and still dropping; do not think this section will have more than two-thirds as many apples as last season, but they will be better quality, free of fungi.

W. H. DEMPSEY, *Trenton, Ont.*

Plant Distribution.

SIR,—In regard to plant distribution to subscribers to CANADIAN HORTICULTURIST, I feel something like Mr. C. B. Jackes, Toronto. I may say also that very often plants arrive thoroughly baked in transit. This year you sent plum trees by express and really it is the first time plants have reached me in good order.

Could the suggestion of publishing a list of hardy plants, and especially where to obtain them, be given, it would be of great benefit. You sometimes recommend, or rather parties writing recommend, especially hardy types of plants, but no nurseryman in Canada seems to have them, though they may be advertised by American firms.

In regard to Eleagnus. I have Eleagnus Longipes and some other kind sent out by Steele some years ago. Both are half hardy here, and fruit seems about the same; not much for eating anyway.

HENRY C. GUY,
Dudley, Muskoka, Ont.

The Tent Caterpillar.

SIR,—Enclosed you will find some cocoons of the tent caterpillar and you will see that the insects are all dead; not one in twenty can be found living. In many of the cocoons there is a white larva. I witnessed the fly at work yesterday; it eats a hole into the cocoon with its mouth and then inserts its ovipositor; but the one I saw at work failed to get a hole through the cocoon, owing to its toughness, time and again it would try with its mouth and then with its ovipositor.

The fly resembles the wasp only much smaller; the head, thorax and abdomen are black, with six white stripes across the abdomen. It had six legs of a light red color and two wings almost transparent, with a black spot at the outside half way from the end. It had two (do you call them *horns*) (*antennæ*, Editor) about half an inch long, and it had two ovipositors ¼ of an inch long and it placed them both together when trying to perforate the cocoon.

J. L. G.

The Plant Distribution.

SIR,—I noticed in the June number of the HORTICULTURIST you requested an expression of opinion re plant distribution. I would be in favor of discontinuance, and devoting the $600 to the journal.

I notice in the July number some 30 subjects treated on, I also find about one half that number is copy from American journals, etc. Now I don't object to the American articles, as they are all good, but I do think that there ought to be far more Canadians giving their experience (Horticultural) through the columns of your valuable journal; I would suggest that part of the $600 be devoted to giving cash prizes for the best article or answers on any horticultural subject you may name from time to time in your journal.

The above suggestion is made after reading Mr. C. B. Jackes remarks in the July number re the bonus distribution of plants to give a list of shrubs, etc., suitable for the Canadian climate. Now I think by giving a cash prize for the best article on shrubs, etc., it might be the means of bringing out more Canadian writers. Not for the sake of the cash, but for the honor of being first.

MAT. MCCREATH,
The Cemetery, Kincardine.

Regarding the beetles, (referred to in question 1102) Dr. Fletcher, of Ottawa, says:—

The insects found on pear tree at Glendger Mills, C.B., by D. S. McDonald, are specimens of a predacious therefore beneficial bug. The gray soldier bug *(Euschistus tristigmus)* which destroys plant lice and caterpillars. With their proboscis, which when not in use is folded under the breast, they kill their prey and extract the juices.

PRESERVATIVES FOR BOTTLED FRUITS.

FOR exhibition purposes it is well to preserve some of our finer fruits in bottles, especially those which can not otherwise be kept. Our experiment station fruit exhibit in bottles at Toronto has always attracted a good deal of attention, and will be of increasing interest year by year. The following formulæ have been recommended by Dr. Saunders for the use of those putting up fruit for the Paris Exposition, and we give them in full because so many are interested in trying the experiment for themselves:

GENERAL DIRECTIONS.

Select the finest specimens of the fruit both as to form and size. Handle them carefully to avoid all bruising and place them in bottles, arranging the specimens so as to show them to the best advantage. Fill each bottle to the neck with fruit, then pour on the fluid recommended, filling the bottles to within half an inch of the stopper so as to entirely cover the fruit. Then place the stopper in the bottle and run a little beeswax or parafine over the joint to make it air-tight. Tie the stopper down with a piece of strong cotton, and attach to each bottle a label containing the following particulars: Name of the variety of fruit, name and address of the grower, with the province in which the party resides. Write also in each case in one corner of the label the letter suggested to indicate the fluid which has been used. Wrap the bottles in paper to exclude the light, and preserve in a cellar or other cool place until required for shipment. Strawberries and raspberries should be cut from the plants or bushes with a pair of scissors, leaving a short piece of stem attached to each.

FLUID NO. 1.

Formalin (formaldehyde) one pound (16 oz.); water, 44 pounds; alcohol, 5 pints. Allow the mixture to stand, and should there be any sediment pour off the clear liquid and filter the remainder through filtering paper. This two per cent. solution of formalin or formaldehyde has been found very useful for preserving strawberries so as to give them a natural appearance.

In each case where this fluid is used mark F on one corner of the label.

FLUID NO. 2.

A solution of boric acid in the proportion of two per cent. Dissolve one pound of boric acid (boracic) in 45 pounds of water, agitate until dissolved, then add 5 pints of alcohol. If the fluid is not clear, allow it to stand and settle, when the clear upper portion may be poured off and the remainder filtered.

In each case where this fluid is used mark B on one corner of the label.

FLUID NO. 3.

A solution of zinc chloride in the proportion of three per cent. Dissolve one-half pound of zinc chloride in 15 pounds of water, agitate until dissolved, then add 1⅔ pints of alcohol. Allow the mixture to stand until settled, then pour off the clear fluid and filter the remainder.

In each case where this fluid is used mark Z on one corner of the label.

FLUID NO. 4.

Sulphurous acid, 1 pint; water, 8 pints; alcohol, 1 pint. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder.

In each case where this fluid is used mark S on the corner of the label.

PRESERVATIVES FOR BOTTLED FRUIT.

LIST OF FRUITS WITH THE NAMES OF PRESERVATIVES TO BE USED IN EACH CASE.

(Where two fluids are named either may be used, but the first named is preferred.)

Strawberries.—Solution No. 1, formalin.

Raspberries, Red.—No. 2, boric acid; No. 1, formalin.

Raspberries, White.—No. 4, sulphurous acid; No. 3, zinc chloride.

Raspberries, Black.—No. 2, boric acid.

Blackberries.—No. 2, boric acid; No. 1, formalin.

Cherries, Red and Black.—No. 1, formalin; No. 2, boric acid.

Cherries, White.—No. 4, sulphurous acid.

Currants, Red.—No. 1, formalin; No. 2, boric acid.

Currants, White.—No. 4, sulphurous acid; No. 3, zinc chloride.

Currants, Black.—No. 2, boric acid.

Gooseberries.—No. 1, formalin; No. 2, boric acid.

Apples, Green and Russet.—No. 3, zinc chloride.

Apples, more or less Red.—No. 2, boric acid.

Apples, White and Yellow.—No. 4, sulphurous acid.

Pears, Russet.—No. 3, zinc chloride.

Pears, Green or Yellow.—No. 4, sulphurous acid.

Plums, dark colored varieties.—No. 1, formalin; No. 2, boric acid.

Plums, Green or Yellow.—No. 4, sulphurous acid.

Peaches, Apricots, Nectarines or Quinces.—No. 4, sulphurous acid; No. 3, zinc chloride.

Grapes, Red or Black.—No. 1, formalin; No. 2, boric acid.

Grapes, Green or Yellow.—No. 4, sulphurous acid.

A FRUIT-LADDER.

ANY farmer or bright farmer's boy who can handle a brace and bit can make a ladder which is almost necessary in picking fruit. Its manufacture is so simple that a glance at the illustration will suffice to show how it is done. Select a good straight cedar pole (cedar is very light, yet strong), peel it, and ring it near the small end or wrap it with strong galvanized wire. Line it off with a chalk line, and bore the holes for the rungs. Then rip it down to the ring; this must be done carefully. Complete the operation by making and fitting the rungs, using some tough wood, such as white oak. After it is finished give the whole ladder a soaking coat of linseed-oil, after which it can be painted if desired. This will make a light ladder which can be inserted between the limbs of fruit-trees and poked up under the trees where an ordinary ladder would be useless or would greatly injure the branches.

FIG. 1638.

The cedar pole will make the lightest and best ladder of this sort, but if it is not convenient to procure a pole, two strips of tough white oak one and one half by three inches, bound and screwed together at the top, will serve as sides for the same. In either case edges should be rounded off, to prevent injury to limbs of trees against which the ladder may rest.—Farm and Fireside.

ONTARIO FRUIT CROP REPORT.

	Apples.	Apricots.	Blk. Berries.	Cherries.	Currants.	Grapes.	Pears.	Peaches.	Plums.	Gooseberries.	Raspberries.
Lincoln—											
A. M. Smith, St. Catharines	poor					very good	fair	fair	fair		
Wentworth—											
M. Pettit, Winona W. M. Orr, Fruitland	fair		fair	good	fair	good	good	very good	very good	fair	fair
Burlington District—											
A. W. Peart, Freeman	poor to fair		fair	good	good	fair to good	poor	poor	fair to good		fair
Grenville and Dundas—											
W. A. Whitney, Iroquois	very poor		very good	none	very good		very poor	none	very poor		very good
Victoria and Peterborough—											
Thos. Beall, Lindsay	very poor						poor		none		
Essex—						poor to					
W. W. Hiltom, Leamington	fair					good	good	very poor	poor		
Prince Edward—											
W. Boulter, Picton	fair						fair		good		good
Ontario—	fair to										
R. L. Huggard, Whitby	good		poor				good	none	very poor	fair	very good
York—											
W. E. Wellington, Toronto	fair						fair		light		
Frontenac—											
Geo. Nicol, Cataraqui	poor						poor		very poor		
Ottawa—	poor to										
R. B. Whyte	fair					*very good			poor		
Grey—											
J. J. Graham, Vandeleur	good					frozen	fair		fair		
J. G. Mitchell, Clarksburg						good	fair		dropping		
Grenville—											
Harold Jones, Maitland	very poor						poor		none		
Durham**—											
E. C. Beman, Newcastle	poor					fair to good	fair		very poor		

*If weather keeps favorable, we will have a very heavy crop of grapes, one of the best on record.—R. B. Whyte.
**Orchards not sprayed—suffered much from tent caterpillar.

GARDEN OF BOBOLI, FLORENCE.

THE
CANADIAN HORTICULTURIST.

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SOME GARDENS OF ENCHANTMENT AND RENOWN.

"Nebassar's Queen
Fatigued with Babylonia's level plains
Sighed for her Median home, where Nature's hand
Had scooped the vale and clothed the mountain side
With many a verdant wood; nor long she pined
Till that uxorious monarch called on Art
To rival Nature's sweet variety.
Forthwith two hundred thousand slaves up-rear'd
This hill—egregious work, rich fruit o'erhung
The sloping vales and odorous shrubs entwine
Their undulating branches.

SOME time between 590 and 561 B C., would seem to have been the most probable date of the erection of the famous Hanging Gardens of Babylon. (Fig. 1639.) The lowest stage of these gardens covered between three and four acres. It is not known what their height was. Two ancient writers agree in making their height that of the walls of Babylon, but there is much difference of opinion as to what the height of these latter were. According to the lowest calculation found in the pages of ancient writers they were seventy-five feet high Whilst this estimate was probably much too moderate we must consider the statement of Herodotus, that they were 360 feet in height, an exaggeration. The mound Babel, which of late years has come to be generally considered their wreck, is still 140 feet high, though for centuries it has been used as a quarry by the Arabs.

As to the general external appearance of the structure there seems to be two main opinions. One that it was like a lofty, wooded pyramid with several terraces, each smaller than the one below; the other, that as in the Roman amphitheatre, the several tiers of arches were so built that the line of the outer wall from base to summit was perpendicular. All seem now of the opinion that arches

FIG. 1639.—HANGING GARDENS OF BABYLON.
(Attempt at reconstruction.)

of brick formed the main support of the building. Probably some use was made of piers and columns too. Flights of stairs led to the summit of the building. Each flat contained stately apartments for all sorts of purposes. The walls of these were perhaps adorned with color glories—battle and hunting scenes glowing in yellow, red, brown, and blue. A great mass of earth covered the top of the terraces. When this soil was laid even and smooth it was planted with trees, shrubs and flowers,

"And then were gardens bright with sinuous rills,
Where blossomed many an incense-bearing tree,
And forests ancient as the hills."

Not inappropriate as at first sight, would seem is the comparison of this plantation, in its later days at least, to a primeval forest. Quintus Curtius asserts that some of the trees grew to be more than twelve feet in diameter. In the days of Amyitis the trees must have been smaller, but the ground was probably more profusely decked with flowers. Aromatic plants most likely grew there, and if the native flora of the country was not denied a place among the vegetable novelties from abroad, the date palm with its crown of splendid leaves and charming amber clusters of fruit hanging down several feet in length, adorned the slopes. The pomegranate with its scarlet flowers, the graceful acacia, the mournful willow, the long feathery rods of the tamarisk, the cone-like cypress, the orange and the apple tree, very likely brightened its groves. In the burning climate of the country, the shade and coolness of the place was delicious. The water for the gardens was supplied from a canal from the Euphrates, and was raised by a screw hidden away in a room within the structure. Mr. Rassam a few years ago found, at the mound Babel, four "exquisitely built granite wells," still some 140 feet high, which he concludes were the pipes used in irrigating the Hanging gardens. Huge rocks were elevated to the gardens to give a mountain like appearance.

Passing on to Roman times we find that this iron race delighted in their gardens, to show their mastery over nature by a display of engineering skill. Lucullus suspended hills upon vast tunnels and brought in the sea for moats and

fish ponds in the making of his pleasure grounds. Reproached by a stern moralist of the age for his degenerate indulgence in the luxury of a house for summer as well as a winter residence, this celebrity smilingly replied, "Do you think me less provident than the storks and cranes who have their summer abodes, as well as those suited for the cold weather." The Topiarian art or the clipping of trees and hedges into representations of birds, beasts, vases, and even fleets of ships was another characteristic of the gardening of this age. The Emperor Hadrian's villa with its grounds some seven miles in circumference was perhaps the most ambitious of Roman gardens. In one part of this park was an imitation of the lovely vale of Tempe in Greece, whilst another portion was designed to represent the lower regions described by the poet Vergil.

During the dark ages garden craft had to find its home in the monasteries. Beauty had to be sacrificed to military ends in the mediæval castle, and there was little room within its walls for such a luxury as a garden. When the use of cannon rendered the walls of these strongholds useless, they were replaced by princely mansions and villas, with an ample setting of garden charms. The gardening art blossomed forth anew in the 15th and 16th centuries in the Italian cities, now treasuries of vast wealth, whose princes and cardinals found in this a congenial outlet for the display of their riches. Our frontispiece, taken from an old Italian engraving, represents part of the Boboli gardens laid out about the year 1550, at Florence. The quaint looking screens that figure so prominently in this are cut in greenery, and the tall spire-like trees marshalled in formal lines in the back ground, are not Lombardy poplars as we of this country would be likely to suppose, but cypress trees.

The Italians took great pains to make their gardens harmonize with the architecture of their palaces. The garden was a suite of open air apartments as much a part of the home as the house itself. The main features of the grounds were the terrace, the grove, the fountains, the reservoirs and the flower garden. They were places of greenery and water, commanding splendid views, for they usually nestled against a hill side. The English horticulturist Evelyn, visiting Boboli in the 17th century, says that there was much topiary work there, and that he saw there a rose grafted on an orange tree.

Splendid gardens were not found in this age in the old world only, but if we can give any credence to the very doubtful authority of Spanish waters of the time on our own continent also. These authors may have drawn very largely on their own imagination when they described the glories of the Coricancha, or Place of gold, the magnificent temple of the Sun at Cuzco, in Peru. The gleam of the soil of the garden there, in the rays of a tropical sun, must have been dazzling, for it was composed with small pieces of fine gold. The graceful stem leaves and tassels of Indian corn were imitated here in gold, the plants rooted so firmly that the strong winds prevalent there could not loosen them. Other plants with leaves of silver, and flowers of gold figured in some gardens of Peru, and doubtless were to be seen here. A flock of twenty sheep of pure gold was grazing in this fairyland, and the shepherds guarding them were of the same bright metal.

Illustration Fig. 1640 is of a labyrinth, which up to the year 1775, existed in the gardens of Versailles in France. The

FIG. 1640.—ANCIENT LABYINTH IN THE GARDEN AT VERSAILLES

winding path was flanked on either side with grotesque imitations of animals intended to represent the beasts of Aesops fables. The gardens of Versailles were extremely formal in character. They still exist, but modern critics who have written disparagingly of them should remember that to form a just idea of their merits they should have been seen when thronged with all the splendid life of the court of the Grand Monarque Louis XIV. They were admirably adapted to the purpose for which they were to be used drawing-rooms for summer days for the gaily clad courtiers and ladies. Ten thousand people lived in the palace, so the lawns could seldom have been deserted. Versailles was entirely the creation of Louis XIV. If he did not "make the desert smile," he at all events through his gardener, Le Notre, turned a pestilent marsh into a superb pleasure ground. He was extremely fond of gardening, and at some periods of the year spent whole days in watching and superintending work in his gardens and his different buildings, and took as much interest in the minute detail of direction as if he had been a landscape artist or an architect. The cost of the palace and park of Versailles according to Voltaire's estimate, now considered the calculation most nearly approaching the truth, was something like one hundred millions of dollars, and to this must be added the worth of the labor given by the peasants, who were forced under the law of the corvee to toil without any pay. At Versailles and its adjoining parks of Trianon and Marly, there were at one time employed no less than 22,000 men and 6,000 horses.

The making of Versailles was a tragedy. A diary of a French notable contains, under date of 31st May, 1685, the following entry. "There are now more than 36,000 peasants at work in and

FIG. 1641.—LOUIS XIV.—From a rare portrait in the Archives at Ottawa.

about Versailles for the King. The half-starved and half-clad wretches die by dozens under the strain of the cruel tasks imposed on them." In October of 1687, Madame de Sevigne wrote as

FIG. 1642.—THE GARDENS AT SAN SOUCI, GERMANY.

follows: "The King wished to spend Saturday at Versailles, but it seemed as if Providence willed that he should not, for the buildings are in no condition to receive him, and there is a prodigious mortality of workmen so that carts full of the dead are carried off every night as they are from the Hotel Dieu, (a famous hospital.)" In contrast to this dark picture of a tryants oppression, we would place the story of the old wind-mill at Sans Souci the garden represented in our next cut, which shows royalty in a brighter light This famous wind-mill stands close in the rear of the palace erected by Frederick the Great of Prussia, and still belongs to the descendants of the sturdy miller who refused to surrender it to that monarch when the latter wanted to pull it down, and include the site in his own gardens. The original mill was a very small one, but Frederick having lost his lawsuit with the miller, with great generosity built a larger mill for his opponent. More than a century later the owner was forced by adversity to think of selling the property and offered it to King William. The Crown still generous, settled on the owner of the mill a sum sufficient to maintain him on his property.

Our last cut is of a landscape garden in Japan. The Japanese are very successful in making in their gardens imitations on a small scale of natural scenery. Miniature mountains, lakes and dwarf trees figure in their compositions. A famous and novel conception is the gardens of a Buddhist ecclesiastic which illustrates thelegend of the nodding stones which bowed down to the earth when they heard the words of the Monk Daito, an early missionary of the Buddhist religion. Some Japanese gardens such as Ginkakuji, or Silver Pavilion and Kinkakuji, or the Golden Pavilion are some three or four hundred years old. One will see there trees a century old not more than a foot high, and many other sights strange to Western eyes.

Maplehurst. A. E. MICKLE.

FIG. 1643.—A JAPANESE GARDEN.

Fig. 1644.—Residence of H. H. Burnham, Esq., Port Hope.
(Front View) *Photographed by A. Purslow.*

A TOWN RESIDENCE.

PORT HOPE with its diversity of hill and dale, its meandering stream and its inclining streets with their wealth of shade trees on either side, has many fine residences and grounds. One of the most attractive of these, and the most observed, perhaps, because situated on the main street of the town, and only three minutes' walk from the central business portion, is the residence of H. H. Burnham, Esq., the President of the Port Hope Horticultural Society.

Because so situated, the grounds, though by no means contracted, are not so extensive as they would have been had they been more suburban, but the best has been made of every yard of space. In fact, Mrs. Burnham, to whose fine taste, artistic skill, assiduous attention, and passionate love of flowers the grounds and house surroundings owe their beauty, has successfully solved the problem of garden decoration. By a well planned arrangement of walks, terraces, lawn space, parterres, and statuary—here a group of cacti, there a mass of bloom, here a creeper, there a climber, here wild bushes and a bank of ferns, there well trimmed shrubs, here a basket, there a vase, and taste and beauty everywhere—this villa attracts the attention and delights the eye of every passer-by. Seen by hundreds every day it no doubt exerts a silent influence in the interests of horticulture, which it would be hard to over-estimate.

A. PURSLOW, *Port Hope.*

PRINCIPLES OF PRUNING SHRUBS

AS FORMULATED BY MR. CHARLES BALTET.

1.—Prune when dormant plants of those species which flower during the growing season on the young, herbaceous shoots. This is Winter Pruning, or Dry Pruning

2.—Prune in full growth, as soon as the flowering period ends, the plants of those species which, when the sap starts, expand their flowers on the branches of the year or older ones. This is Summer Pruning, or Green Pruning.

In both cases the desired end is that the floral elements shall come well constituted at the blooming epoch Summer pinching or shortening strengthens, or causes to branch, the long shoots which should flower in winter or the following spring, and thus increase the show of flowers.

Pruning is long when more wood is left on the plant, short when more is cut away, combined if the two operations are applied at the time on the same shrub, a system preferable to alternating.

Without rules to follow, long pruning or the absence of pruning should be preferable to exaggerated mutilations. Everywhere and always the trimming of trees and shrubs is recommended by thinning the branches that grow too dense, their rejuvenation by the suppression of old, sterile, wornout stems, and replacing them with vigorous shoots, and, finally, the cares of neatness, clearing away scaly or mossy bark, the suppression of dead wood, broken pieces, suckers and the withered remains of flowers.

Fig. 1645.—Residence of H. H. Burnham, Esq., Port Hope. (Side View)

NOTES ON THE GRIMSBY FRUIT DISTRICT.

TO the enthusiast in horticulture the Niagara district offers an endless variety and an almost inexhaustible field of interest. Especially is this true when the enthusiast is less favored than the fortunate dwellers of our sunny vineyards and happens to be a dweller in the north. To one of the latter who drops in upon you perhaps only once a year, or less, the progress you are making in your methods of cultivation, and general advancement as a fruit district, are much more noticeable than to one of yourselves who are engaged in the operation. I, for example, can see great changes for the better every successive visit I make to your district. If competition be the life of trade in commercial lines, so must competition and the spirit of rivalry tend to greater perfection in the operation of fruit culture. Only a few years ago there were conspicuously but a few model fruit farms and farmers between Hamilton and St. Catharines. Now there are many, and their number is increasing every year. There are yet a number of laggards to be seen, but the discriminating competition in the fruit markets must in time drive them, if the spirit of rivalry does not shame them into better and more progressive methods.

Last December while making a visit to my old friend Mr. M. Pettit and his family and marking the great improvement which he had made in his fine fruit farm in the course of three or four years, I visited especially the home of Mr. W. M. Orr to note his methods of fall cultivation in the several departments of his farm. A few weeks ago I made a second visit to observe, as far as they would show, the result. Mr. Orr is among the most systematic and thorough fruit farmers on the Grimsby road, but to a novice it is not easy to see how a beginner could adopt his methods and follow them until returns began to come in without considerable capital to start with. Mr. Orr does not demand two crops from his land at the same time, nor does he believe in taking anything from the land during the years in which the orchard is in its preparatory stage, whether it be in peaches, pears, plums or apples; but on the contrary he believes in cultivating and feeding the soil from the time the trees are planted without taking any crop from it till the trees are in bearing. This belief he puts into practice, for we noticed on his farm orchard plots of both plum and pear trees two years, three years and so on up to thirteen years, all treated after the same fashion.

Last fall Mr. Orr had nearly all his plots covered with a growth of rape. This served to arrest the leaves as they fell from the trees and they helped to thicken the covering. This covering Mr. Orr claimed protected the roots of the trees during the winter, besides acting as a mulch for the soil, and was ploughed under early in the spring. This ploughing was followed by a sowing of crimson clover, or some other green crop to be turned under early in the fall and treated as before. Mr. Orr is firm in his belief that the trees, in the increased quantity and superior quality of their fruit, pay for all this preparation after they come into bearing, and in a very few years more than make up the value of any root or other crop that might have been taken off the land. I stated in the HORTICULTURIST two years ago that the finest samples of plums that came into the northern market came from the farm of Mr. Orr, and

looking over his farm this season I am convinced that his methods of cultivation and care of his trees has much to do with it. Besides the labor that he puts upon the soil Mr. Orr gives due attention to washing, pruning and spraying his trees, and I never saw anything look finer or cleaner than all his orchard plots did a few weeks ago. All his plum trees six years planted, and from that to thirteen years and over, were as full as they could bear ; and a young pear orchard five years planted, treated as above and looking fully as well as the plums, Mr. Orr says is already giving a fair return for labor and land value. One thing is certain that Mr. Orr has his farm as clean as it can be ; is giving it a thorough system of cultivation and is taking nothing from it but his fruit crop. As to how well and how much the latter pays for expense, labor, and land value, and at what age the trees begin to pay a fair equivalent, and at what ratio they increase from the paying point, Mr. Orr alone may be able to say.

Another matter of interest on Mr. Orr's farm is his apple orchard planted on the mountain side where cultivation is impossible. Here the trees seemed to thrive well enough but did not appear to be bearing very well. The under growth I suggested might be against them and we thought the situation an ideal one for sheep grazing. Mr. S. D. Woodward, of Lockport, places great value upon sheep in the apple orchard ; so do many farmers about here in my own county. But Mr. Orr's reply to my suggestion was that he had tried sheep and could not protect them from dogs. This seemed to me a strange state of affairs in a civilization such as you enjoy in the Niagara peninsula. Such a state of things could not exist with us up in these back townships, and why should they with you. With that defect remedied and Mr. Orr's mountain side apple orchard stocked with sheep his fruit farm might well be considered an ideal one.

T. H. RACE.

Mitchell, Aug. 15.

THE EMERALD PLUM.

SO long ago as the year 1889, the late Warren Holton, of Hamilton, well known in fruit growing circles, sent us a sample of a new seedling plum, which he called "Early Green." In an accompanying note he said, "considering its size, fair quality and in particular its early season (1st August), in ripening, I think it may prove worthy of cultivation."

About August 1st, 1899, ten years later, we received another sample of this plum under the name of Emerald, which we had little difficulty in identifying as the same. The accompanying engraving shows this plum in natural size, the color is greenish yellow, form roundish, of good size and excellent quality, coming in before the better varieties of Japan plums, and not being subject to rot- this plum will no doubt be of consider, able value.

Fig. 1646 —The Emereld Plum, (natural size).

FERTILE AND STERILE GRAPES.

PROF. S. A. Beach of Geneva Experiment Station, has been making a study of the self fertility of the grape. It has been noted that some varieties, when planted alone, failed to set fruit. Barry, Herbert, Brighton, Eumelan and some other varieties, when set alone in vineyards, or in blocks remote from other sorts, proved shy bearers, producing only a few bunches of a straggling character, or were complete failures. These same grapes, in vineyards not favorably located, but composed of mixed varieties, gave heavy yields of large and compact bunches. The cause of these results has been the subject of investigation for some time and has been under experiment. One fourth of the varieties have borne perfect compact clusters in the bags; more than one-third produce clusters not quite perfect but still marketable; about one-sixth of the varieties produce a few fruits, but not large enough to produce salable bunches; and nearly one-fourth of all tested produce no fruit whatever where cross pollination is prevented. The following is a list of classes 3 and 4, as tested, which will not fruit well when standing alone, and should therefore be planted beside other grapes which bloom at the same time.

CLASS 3. CLUSTERS UNMARKETABLE.*

Adirondack	Marion
Alexander	Nectar
Amber Queen	Noah
Brighton	Northern Muscadine (?)
Canada	
Daisy	Norwood
Denison	Pearl
Dracut Amber	Roenbeck
Eumelan	†Ross (Gov.)
Geneva	*Thompson, No. 5*
Gold Dust	*Thompson, No. 7*
Hayes	Vergennes
Lindley	Wcodruff

CLASS 4.—SELF-STERILE. NO FRUIT DEVELOPS ON COVERED CLUSTERS*

Amber (?)	Hercules
America	Jewel
Aminia	Juno
Barry	Massasoit
Black Eagle	Maxatawney (?)
Blanco	Merrimack
Burnet	Montefiore
Creveling	Oneida
Dr. Hexamer	Red Bird
Eaton (?)	Red Eagle
Eldorado	Requa
Elvibach	*Rogers No. 5*
Essex	Roscoe
Faith (?)	Salem
Gærtner	White Jewel
Grein Golden	Wilder
Herbert	Wyoming

The method used was simple but the amount of work required great. Vines of the different varieties in apparently healthy, productive condition were selected, and two or more well formed flower clusters on each vine were inclosed, before the flowers opened, in manila paper bags, as shown in the figures. When the flowers open, as

FIG. 1647—BAG IN POSITION OPEN.

FIG. 1648.—BAG CLOSED WITH WIRE LABEL.

they do perfectly although bagged, they can receive pollen from no other variety ; that is, they must become self-pollinated, not cross-pollinated.

If they produce fruit under these conditions the variety is self-fertile ; but if, repeatedly, in different years and in different vineyards, the flowers bear no fruits or but a few straggling berries, the variety is self-sterile, or practically so.

SKETCH OF THE WORK OF MR. H. H. STEWART.

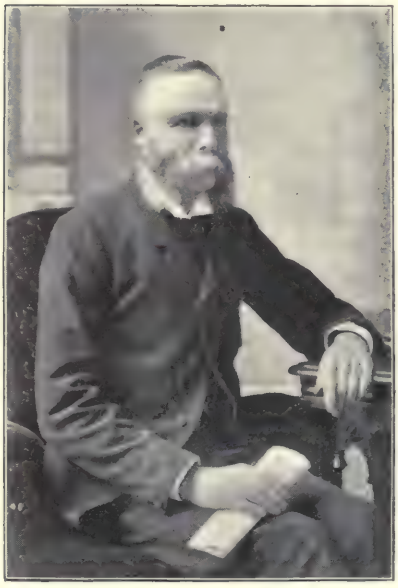


FIG. 1649.—MR. H. A. STEWART, HAMILTON, P. E. I.
President P. E. I. F. G .A.

WE have pleasure in reproducing in our columns this month the portrait of H. A Stewart, Esq , President of the Fruit Grower's Association of Prince Edward Island. Mr. Stewart was born at Hamilton, P E.I , on March 20th, 1850, and is consequently in the prime of life. He has always taken an active and prominent part in all movements in his native province, having for their object the advancement of agriculture, and the subordinate science of horticulture. Before a Provincial F. G. A. was properly launched, he was the President of the Prince Edward County Association, which did much good pioneer work for the general association. Mr. Stewart is one of the most advanced agriculturist and horticulturists of his native province, where lately agriculture is followed with such success in all its improved phases ; he is also active in the organization which brings the cultivator within reach of the social, fraternal and economic advantages of the age. Since 1897 he has been President of the Agriculture Insurance Company of P. E. I. Mr. Stewart is a man of splendid presence, a good speaker, a clear and forcible writer, and a true lover of his country and Province. Under him the F. G. A. of P. E. I. is making a steady progress.

UNPROFITABLE PLANTATIONS.

FRUIT growers are a long time in learning that the principles of success in other lines apply with equal force to their business. Every fruit farm has acres of orchard which yield no profit because not properly utilized. One of the first lessons to be learned is, *the soils that are suited to the various fruits.*

The apple is easily satisfied, and will grow on a great variety of soils—from heavy to light—but on light soil there is often too much wood growth and too little color. The best results so far as our observation goes, are obtained in clay, or where a clay subsoil is covered with a few inches of sandy loam. Such soil, if well tilled and enriched, gives highly colored and large sized Baldwins, Spys and Cranberry Pippins, which on light sand are irregular in size and quality, and the King, unproductive on the latter soil, was fairly productive on clay. The pear and the plum, especially, demand a clayey soil, well tilled, for the best success, and in such soil they will be much more fruitful than on a light sand; and the pear especially will take on a finer color. This we have noted especially in the case of the Bartlett, the Flemish Beauty, and the Clairgeau.

It is astonishing what endurance the pear and the plum have of even poor soils. An apple orchard was planted at Maplehurst on a poorly drained clay soil, with "hard pan" subsoil. The apples were worthless—too small to pay for gathering. Pears planted in the same soil were a success.

The cherry and the peach, on the other hand, most fastidiously demand a sandy loam, well drained, and will not thrive on clay.

The cherry tree is particularly fastidious over soil. On sandy soil, well tilled, it makes extraordinary wood growth, young branches of the sweet cherry class, such as Napoleon or Spanish, often making two feet of stocky new growth in the months of June and July. In sod, if on sand, therefore, the growth is good, and many fooolishly allow their trees to go untilled, when cultivation would double their returns.

On heavy soil the cherry is not usually a success.

Peaches at Maplehurst planted on clay loam and well cultivated, made poor growth, and much sickly wood. The fruit was small, though highly colored, and after one or two crops the trees began to lose their vitality and die by degrees; while those on high sandy loam, grew with great vigor and lived to twenty and twenty-five years of age. A neighbor, Mr. George Smith, who keeps a Jersey herd and fertilizes heavily, has a fine Early Crawford orchard on sandy soil, which yielded an average of seven baskets per tree of magnificent highly colored peaches, and pay an almost incredible income per acre, while other orchards of the same variety, on unsuitable soil, are an actual loss to the owner. The peach orchards of the Niagara and Essex districts also are planted on sandy soil.

The grape will succeed on either sand or clay, but we have noticed that on sand there is more mildew, more wood growth, and less fruit than on heavier soil. Pattison, a grower on clay, claims that his Concords ripen a week earlier than others planted on sand, and are sweeter in flavor.

On uncultivated land the grape is almost barren. It is a gross feeder, reaching out its rootlets eight or ten feet in every direction in loose soil, and

quickly responds to generous treatment.

The currant grows vigorously on sand, but fruits more heavily on clay, if well tilled; and the gooseberry is almost a failure on sand, especially the finer varieties. On clay, especially if on a northern aspect, as for example on the north slope of the Niagara escarpment, where there is moisture, shade and drainage, even the large English gooseberries, such as Lord Dufferin, Whitesmith, Crown Bob, etc., succeed remarkably well, while on the sand on the level land below they are worthless.

Raspberries and blackberries do best on deep rich, moist sand, which does not hold water in winter. On such soil the Cuthbert often grows canes eight feet high, and yields wonderful crops of huge berries. The same soil is most suitable for strawberries.

With these data in view the young planter should plant wisely, and many who are making no money should consider whether the points here made do not explain the reason.

Much of the best sandy loam in the fruit growing sections of Ontario is planted to apples, land that would bring a fine income if planted to peaches, cherries, raspberries, strawberries or garden truck, such as tomatoes, cauliflower or celery, but which now rarely yields enough to pay the taxes. We know Baldwin orchards on sand, which only average one crop in ten years, and one where the subsoil was hard pan that only yielded two or three good crops in forty years, and is being made into fire wood. Had the planter known something about soils suited to fruits, he might have saved himself a life of disappointed hopes.

SPRAYING FOR MUSTARD.

By Frank T. Shutt, M.A., Chemist, Dom. Expl. Farms.

ONE of the most persistent weeds that farmers in many parts of Canada have to contend with is Mustard, commonly known in Europe as Charlock. Though an annual, it is most difficult to eradicate from fields in which it has become established, owing to the fact that the seeds—of which a large number is formed — are endowed with a strong vitality and are preserved, by the oil they contain, from decay until favourable conditions for sprouting occur.

Pulling the Mustard when it appears among the grain, or keeping the weed from seeding by working the land (as under a hoed crop) are the two methods which have hitherto been in vogue to exterminate this pest, and when the work is done thoroughly they may be considered satisfactory and efficient. The former, however, is always costly, and the latter is sometimes not convenient. When, therefore, it was announced in the Agricultural Press that spraying with certain solutions of sulphate of iron and sulphate of copper had been tried successfully in England and France, it was deemed advisable to make similar experiments here. We should then be in a position to furnish information at first hand on this subject.

The fields of the Experimental Farm being free from this weed, it became necessary to make the trials upon an adjoining farm, and for this purpose a field of barley was selected which showed

a considerable amount of Mustard. The size of the plot treated in each case was one-tenth of an acre, and the quantity of solution uniformly supplied to each area was five gallons, or at the rate of 50 gallons per acre. The date of spraying was June 26th, the grain being from 15 inches to 20 inches high, and the Mustard practically the same height and just coming into flower. The chief data may be briefly stated as follows :—

Sulphate of Iron, 5 per cent.: No effect upon barley. The leaves were practically all stripped from the stems of the mustard, but the weed was not killed, as evidenced by the new leaves subsequently starting, the plant flowering and the seed-pods filling out and maturing. The leafless stems were quite green a fortnight after the spraying, and were apparently furnishing nourishment to the seed.

Sulphate of Iron, 10 per cent.: A slight scorching of some of the leaves of the barley was to be noticed. A fortnight after the spraying this was not discernable, and, though this spray may have *slightly* retarded growth, it is not probable that the yield of grain was affected.

Though the effect upon the mustard was more pronounced than in the foregoing instance, as noticed by the "spotting" on the stems, it was not sufficiently strong to prevent flowering and the ripening of the seeds, a large proportion of which proved, upon testing, to be vital.

Sulphate of Copper, 2 per cent.: A certain amount of injury to the leaves of the barley resulted, evidently retarding growth to a somewhat greater degree than the 10 per cent. Iron Sulphate solution. At the end of two weeks, however, this effect had practically all disappeared, and it became doubtful if there were any permanent injury to the grain. The mustard very quickly and markedly showed the effect of the spraying, both the stems and the leaves dying without allowing the plant to seed. Two weeks after spraying, a few living mustard plants were found in the plot, but it is believed they had escaped the solution, owing to the height and overshadowing of the barley.

Sulphate of Copper, 5 per cent.: This solution damaged the barley in a much more pronounced manner than the preceding solution; in all probability it somewhat lessened the yield of grain, though, as the ground was very uneven in character, no comparative data on this point could be obtained.

The mustard was all killed; an inspection two weeks after the spraying did not reveal any living plants.

In order to ascertain the effect of these solutions upon this weed at a younger stage of growth than that just reported upon, mustard seed was sown in rows in a plot upon the Experimental Farm. When the mustard plants had reached the height of six to nine inches they were sprayed, as follows: July 20th—*Sulphate af Iron, 5 per cent.:* Not all killed; the few survivors possessed green stems and in time sent out new leaves. It is extremely doubtful, however, if the plants will have sufficient strength to flower. *Sulphate of Copper, two per cent.:* All the plants died within a few days.

July 22nd—Further sprayings were made. *Sulphate of Iron, 5 per cent.:* The stems were stripped of all their leaves, but in the course of a few weeks fresh leaves had appeared on many of the plants. *Sulphate of Iron, ten per cent.:* Though somewhat more severely attacked than by the five per cent.

solution, there was sufficient vigour left in many of the plants to send out new leaves, after a few weeks.

Sulphate of Copper, two per cent.: Only a very few of the older and more vigorous plants escaped destruction, probably not more than three to five per cent. This solution is evidently strong enough to kill all mustard plants six inches in height and less.

Sulphate of Copper, five per cent.: All the plants killed.

From the above data, I make the following inferences:

1. That a two per cent. (2%) solution of Sulphate of Copper, (that is, 2 lbs. in 10 gallons of water) is, all things considered, the most effective, safest (as regards the grain crop) and most economical to use. The spraying should be done thoroughly, and for that purpose 50 gallons per acre will be required. If a heavy rain follows the spraying within 24 hours, the operation will be required to be repeated.

2. That, in order that the work may be effective, spraying should not be delayed after the mustard plants have reached a height of six to nine inches. If allowed to grow taller than this, stronger solutions would be necessary and in larger quantity, as the grain would then largely protect the mustard.

For many valuable suggestions and much assistance in the work I am indebted to Mr. W. T. Macoun, Horticulturist of the Experimental Farm, who concurs with me in the deductions drawn from this investigation.

NOTES OF STRAWBERRIES.

CLYDE was as productive, fine form, uniformly large size and good quality as ever, but its continued great productiveness from year to year is developing a weaker growing plant not exactly a weak plant but not enough foliage stalks for its great number of fruiting stems, and to bring this variety to its highest state of perfection it will need to be mulched with horse stable manure in the winter, or else have some nitrogenous commercial fertilizer put on in the spring before fruiting to make a little heavier foliage to shade the enormous crop of berries that it carries. From some few soils this berry seems to be a little too light in color to please all markets, but for my own fruiting on a variety of soils and from general reports received, it is one of the most productive and satisfactory berries that has ever been grown.

GLEN MARY is very vigorous in plant growth; dark green foliage and enormously productive of large size, deep red berries of high quality and is proving more satisfactory even than in former years. I have been fearful in the past that there would be too many irregular berries in this variety, but this year they were all of uniform, gobular shape and no mis-shapen ones at all, and it can be counted as A No. 1, either for home use or market.

PRIDE OF CUMBERLAND, although a little later in ripening than Glen Mary, has the same vigor of plant, great productiveness, equally good, dark red color, perfectly globular, very firm berries of high flavor. I count it the most productive, fine appearing and firmest shipping, medium to late season berry for long distance markets of any we have in the country.—J. H. H. in American Gardening.

NOTES ON CURRANTS.

THE NORTH STAR CURRANT.—We have fruited this currant at Maplehurst since 1896. At first we were inclined to condemn it as being too small a berry, but during our four year's acquaintance with it, our estimate of its value has been gradually growing higher, until in 1899 its great productiveness, bright beautiful color and lateness have given us a much more favorable impression of its value. Originating in Minnesota, it may naturally be expected to have greater hardiness than varieties originating farther south. The plant is very vigorous and very productive, and the fruit grows in long compact bunches, with an inch or so of naked stem as a handle. The fruit hangs in fine condition as late as September 1st, a point in its favor for Southern markets.

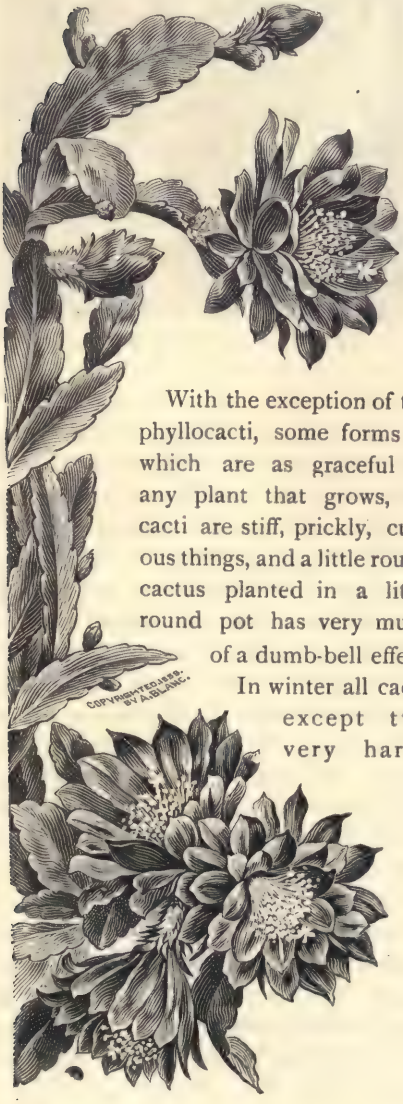
CURRANTS.—On the subject of currants, J. S. Stickney, speaking from twenty years' experience, "recommends deeply trenched soil; would not manure too heavily; too much wood, too little fruit; prune severely in fall or spring, also in summer for renovating old plants; eight acres of Prince Albert produced 900 bushels, that netted $200; long Bunch Holland not good—too dry and sour; Fay not good; is looking for a new variety; Pomona recommended as good, better, best; Wilder highly recommended." Mr. Reed says Pomona, Wilder and Knight's Improved are the same. Mr. Stickney and also Mr. Barnes recommend London Market. Berry boxes in sixteen quart crates recommended for currants.—Report of Minn. Society.

THE WHITE IMPERIAL CURRANT is about the most satisfactory white currant to be found. We consider it one of the most satisfactory fruits for table use. It lacks the sharp acid taste of the red currant, which is quite objectionable to some people, but has a mild, pleasant flavor, which is very enjoyable. Perhaps the finest of all currant jelly can be made by using White Imperial with just enough of the red currant mixed with it to give a light red color. It, probably, would not pay to raise white currants for market, but they are very satisfactory for home use.—R. N. Y.

PICKLE MILDEW. — Bulletin 156, Geneva, gives some pointers of interest to pickle growers. A few years ago this crop was considered quite a profitable one until the downy mildew appeared, and caused nearly all the growers to lose money. In 1897 it was proved by repeated experiments that repeated sprayings of Bordeaux mixture will prevent the mildew and save the crop. The spraying begins about July 20th, and continues every eight or ten days until frost, costing from 2½ to 3½ dollars an acre for each application. This seems quite an expense, but since the yield is increased in value from $22.50 to $73.75 per acre by the outlay, it is evidently a safe investment.

Flower Garden and Lawn.

THE SUMMER TREATMENT OF CACTI.



With the exception of the phyllocacti, some forms of which are as graceful as any plant that grows, all cacti are stiff, prickly, curious things, and a little round cactus planted in a little round pot has very much of a dumb-bell effect. In winter all cacti, except the very hardy ones, must be grown in pots or boxes, but in summer it is pleasant to relieve their stiffness by bedding them out in this picturesque mound fashion. Thus they are more easily cared for, and that the mound is much prettier than the potted group will be shown by contrasting the two pictures.

I have never been afflicted with the cactus craze, and perhaps this is the reason why so many complimentary plants, cuttings, etc., have been sent

FIG. 1650.—OPUNTIA.

me. I am always glad to get the prickly things out of the way into some such an outdoor arrangement, and summer treatment of this kind seems to suit the plants well.

The broad-leaved phyllocacti are handsome and harmless enough to keep at closer range, and they do not like the full, hot sun so well as most other sorts;

sometimes it blisters, cracks or yellows the leaves.

The secret of success with cacti lies in giving them thorough drainage, plenty of water when flowering or growing, then thoroughly resting and ripening them by withholding all water except what nature gives them, through the flowerless season. More cactus cuttings and plants fail from over-watering and lack of sunshine than for any other reasons. Most cacti are hardier, too, than we think. Unless flowering, they can be left in an unheated room through all except our most severe winters. The opuntias and some of the pretty red-berried echinocacti are entirely hardy without protection out of doors here in Western Carolina.—American Gardening.

FIG. 1651.—CACTI IN MEXICO.

DICENTRA SPECTABLIS is one of the finest of the hardy herbaceous perennial plants in cultivation and should be in every garden. Nothing is prettier than its graceful racemes of rosy crimson flowers, among its leafy stems in the early summer, and indeed it has been largely planted in our Province. It is suitable for planting along the margin of shrubberies, or on the borders of walks, along with other perennial flowers. Grows to a height of from 9 to 24 inches.

In the Niagara district, on the mountain side, there are two native Dicentras, which are very beautiful and are great favorites with school children, who call them "Boys and Girls." Botanically they are: *D. Canadensis* (girls) with greenish-white fragrant flowers, and under ground shoots on which grow small round yellow tubes From these it gets another common name, Squirrel Corn. The corolla is heart shaped but the spurs are very short and rounded, giving an excuse for likening the flower to a girl's dress. The other is *D. Cucullaria* (boys) of which the flowers are whitish, and have longer spurs, which so diverge as to remind one of boys' clothes, and which gave rise to another common name, Dutchman's Breeches The flowers are clustered on the raceme, and are much sought after in spring for table decoration.

ORNAMENTAL ASPARAGUS.

FIG. 1652.—ASPARAGUS SPRENGERI.

THE Ornamental Asparagus open up a new line of ornamental plants for house culture. Unlike many such plants they do as well in the ordinary window as when grown in a greenhouse, making rapid growth, and holding their attractive green color well. They do not require a great deal of sunshine, but thrive best where begonias and primroses do well. For that reason a north or west window can be utilized which will be of little use to flowering plants. Like ferns a damp atmosphere suits them perfectly, but unlike ferns they will do well without it. A daily spraying with clear water will furnish just the dampness they need.

Asparagus plumosus nanus, also called the climbing Lace Fern, is usually considered the handsomest one among them. The shape and form of the leaves remind one of the fronds of the finest fern, the texture delicate and lace-like. It grows in the form of a vine, and the branches often grow to great length, but should one prefer not to have a vine it can be easily made to grow in bush form by pinching out the ends of the branches. This is really the most ornamental way to grow the plant, as it is then a perfect mound of green, lace-like leaves, drooping on all sides of the pot. The leaves arch gracefully, and are from ten to fifteen inches long, tapering from a width of ten or twelve inches down to a point, making one of the most beautiful plants for table decoration that can be found. The branches are fine for cutting, and remain in perfect condition for weeks if the water is changed frequently. I had several cut sprays for mantel decoration last season, and they remained in perfect condition in an ordinary room for five weeks. Hardly a leaflet fell during that time, and the color seemed as fresh and bright as when picked. Charcoal was kept in the water, which was renewed every second day, and this probably helped to keep it so well.

A. Sprengeri is adapted for a basket plant, being of drooping habit, and though the foliage is also fine and a vivid green it is entirely unlike that of the other variety. The sprays grow to a length of four or five feet, but if a shorter growth is desired the ends can be pinched back and the plant will then grow bushy, often entirely hiding the basket in which it grows. If one has no place for a hanging basket, the plant can be grown in a pot placed on a bracket. This is often the better way, as it can then stand in a saucer and be sure to receive all the water it needs, while a basket often suffers for want of water. Both of these plants grow freely all the year round, and cannot fail to please everyone.—Park's Floral Guide.

FIG. 1653.—CLIMBING VINES AT MAPLEHURST, 1899. (*From a Photograph by Miss Brodie.*)

IT is time that our Canadian farmers began to study a little of landscape art. They have long enough confined their attention to the plough and the harrow, and now surely they can spare a little time for the decoration of their lawns. It is a very simple thing to hunt up some of our native Virginia Creepers, and plant them to cover the unsightly stables, or to trail over the back verandah. In some parts of our country they grow in great profusion, climbing up the old forest tree trunks, and hanging in festoons from tree to tree. They are easily moved, for roots spring out at every node, and a plant seldom fails to grow. Even cuttings made in August may be planted, with good hope of success. Figure 1653 shows a side view of Maplehurst, with a Virginia Creeper, and Clematis Virginiana, another hardy native creeping up in company, and showing the pretty little cymes of white flowers of the latter sett off quite prettily by the dark purple berries of the Virginia Creeper The effect is charming and the pretty creepers thus almost covering the wood-work seems to cause the house and the grounds to have a more living connection, and blend into a harmonious whole.

The Park and Cemetery says :—

The work of improving the appearance of public grounds and private premises facing the railway rights of way is just as important, perhaps even more so, as improving the station grounds proper, and is rather more difficult of accomplishment. This is especially true of private grounds, for there are more individuals to be dealt with.

In the outset as many old buildings and fences as possible should be re-

moved, and after that the greatest immediate good will follow a generous use of vines. A Virginia Creeper, Ampelopsis Quinquefolia, set against the base of every building, no matter how old and delapidated, and at intervals along every fence, will alone do wonders in altering the appearance from passing trains, but the effect will be greatly improved by using a variety of hardy vines such as Clematis paniculata, C. Jackmanni, C. Virginiana, C. graveolens, Trumpet Creeper (Bignonia radicans and where hardy, B. grandiflora), Bittersweet (Celastrus scandens), wild Roses and wild Grapes.

Small trees and shrubs should also be freely introduced to shield the grounds from the passing public as well as to screen unsightly objects.

By this means a double good will have been accomplished, the general appearance of the place will be raised to a higher plane, and individual back yards transformed into habitable gardens while the chances are in favor of other good results following in the wake of this, as of every kind of unselfish movement.

AUTUMN WORK IN THE GARDEN.

IF good results are desired, the fall work in the garden, while not so interesting as the work in the spring, is fully as important.

The hardy border should first be cleaned up, by cutting and clearing away the stems and tops of all herbaceous plants, and the beds given a good mulch of well-rotted manure or compost, made up of leafmold and manure. Where this cannot be had, street sweepings can be used, but must not be put on over two inches deep.

Hardy roses may be protected by heaping leaves about them and over the ground around them, with a little soil thrown on top to prevent the leaves from blowing away. Tender roses may be protected in the same way; but instead of using earth to prevent the leaves from scattering away, better to have a lean-to, made of boards about eighteen to twenty-four inches high, which also sheds off the rain and snow. Care should be taken to leave it open at the ends, or one side, to admit air.

Shrubs should be pruned by removing such thin branches as will not bloom. Hydrangea paniculata should be heavily manured, and in the early spring all thin branches cut away, and the other wood of the past season's growth cut back severely, fully one-half. This treatment will result in a vigorous growth and produce large clusters of bloom.

All clematis can be cut back within two feet or less of the ground, and a covering of rotted manure and leaves placed around them and over the ground.

Grapevines may now be trimmed to advantage, much better than late in the spring.

Fruit trees should be pruned by removing all "water sprouts" and interfering branches, always cutting them off close to the trunk or limb. All dead limbs should be removed from shade trees, and where the top is too dense remove some of the thin inside branches. Examine all trees for nests and larvæ that will produce caterpillars.

The lawns should now receive attention by topdressing with compost, old manure or street sweepings, spreading it over as evenly as possible

The cannas, dahlias, gladioli and

caladiums should now be safely housed in a dry, warm cellar not heated by a furnace. If your cannas and caladiums begin to rot during the winter, shake off all the dirt, and cut and scrape away the decaying parts Then dust over thickly with fine charcoal, which may be had from any tinner or cornice maker Cover with dry earth —Landscape Gardener.

BASKET PLANTS AND VASES.

THE times have greatly changed with varieties grown for hanging plants since 1850. The cultivation of many delicate kinds like Lobelia, Sweet Alyssum, Mimulus, Cupid sweet pea, Ivy geraniums, etc., have entirely succeeded the Dusty Miller and Strawberry geranium, but the Oxalis is still grown, and properly cared for is fine for this purpose. Lobelias of any variety are admirable for both basket and vases, as are the above mentioned sorts. But few are cognizant of the Lobelia Erinus thriftily grown alone; for then it becomes a mass of delicate green foliage, interspersed with lovely blue flowers. Emperor's star has a white centre, and each by itself is best. The double petunia grown with asparagus tenuissimus, and Ivy geranium, Plumosus nanus, Abutilon Mesopotamicum with centrosema and pilogen and climbing meteor rose, make the most charming vase if rightly trained.

The trailing lantana (*delicatissima*) is worthy of a trial for baskets. It is of very compact growth, profuse bloomer of pinkish lilac. This too is fine to edge a vase on one side, with lobelia on the other.

Then the Japanese Fern Ball is an acquisition; it may be so neglected as to entirely wither away, but water will revive it. It is unlike the resurrection plant in that it grows leaves. But this resurrection plant, so called because it spreads itself when wet, is of little use except to be strung up with moss and mimulus or some other plant to flourish in. I believe in a resurrection that is more permanent. Let us cultivate good roots to our plants, and expect corresponding results.

I am of the opinion the Memorial rose will be of great ability and beauty grown in a vase. Somehow the tree rose gives one the impression little children do when over-dressed, befrumped and befuddled with lace and ribbons. If we cannot purchase a vase, we can manufacture one. I found in my travels one day an old cover of a meat warmer, heavy Britannia ware, I took it home and gave it a coating of tar on the inside, sawed off a shapely round post, and made a circular bottom of two inch plank, nailed it together, gave another coat of tar, painted the outside, and have a vase that answers every purpose and looks like something better, when arrayed as even Solomon never was. By the way, this cover came from Montreal, I learned afterwards, and the bottom part I obtained and used for small pots, intersected with moss. Doubtless, more are to be found in the province of Quebec.

M. A. HOSKINS.

Newport, Vt.

THE AMARYLLIS AND SOME RELATIVES.

FROM the time that, as a child, I stood in wonder before my mother's king lily, I have loved the amaryllis. Not until many years later did I learn that the name of the king lily was Amaryllis Johnsoni, and it was after many experiments and repeated failures that I succeeded in the culture of these rich and rare bulbs. I know of no specialty which gives so much satisfaction at so little labor as the amaryllis. I use a very rich compost of well rotted manure, black earth and sand. The large bulbs are set in six inch pots, and smaller bulbs in four-inch pots. Into the bottom of each pot goes a handful of charcoal, and then the mold. I set the bulbs so that about one-fourth shows above the soil; then I water them and set them in a warm, light place. A good bulb will throw up leaves and flower stalk almost at once; some send up the flower stalk first. As soon as they begin to grow thriftily I set them in the sun and give them plenty of water. New bulbs planted in the spring will bloom about August. After they have bloomed I gradually dry them off and set them in the cellar in the fall, to rest until November. I have found this the great secret,—the resting of the bulbs. When I bring them up I give them sun, plenty of water, and liquid fertilizer once a week. They will bloom twice during the winter for me, the last time about April or May. Then I gradually dry them off until in July they are put under the rose bushes to rest. In the fall they come into the house to bloom, and this year were put into the cellar along in March,—and so on, alternate rest and vigor. I only repot once in two years, but I give them much fertilizing and water when they are growing. Some bulbs will throw up two stalks, each bearing six flowers, and a grander sight cannot be imagined.

The familiar Johnsoni is a rich red, with a white stripe. It is a good color, but is small in size of flower and bulb. It is almost universally called King Lily, although it is by no means king of the amaryllis tribe. Its mate is Amaryllis Regina; it has short, stubby leaves, instead of the long ones of the king, and the flowers are large, pale red with a white centre. We call it Queen Lily. The King, because of its richness of color, rather kills the Queen if they stand in bloom side by side. But alone, Queen lily is beautiful.

The Crinum ornatum is the real king of amaryllis. It has a big bulb which sets on top of the earth, with short, fleshy leaves and snake like roots. It will do well in the garden as a summer bulb, but I treat it as a pot bulb. The flowers are borne upon a stout stalk and are very large and numerous. The color is a lovely pink with a broad fiery band of scarlet through each petal. A grander lily can scarcely be imagined. It is the grandeur of lilies which makes them such favorites, and when you add fragrance to them, such as Crinum Moorei possesses, you have a wonderful combination. This crinum is white with a pink stripe, and very sweet.

It is hard to select a favorite from the amaryllis, but my A. aulica, which is a rich deep red, almost black, is of such magnificent size and rich coloring it may well be termed a favorite. The color is seen in no other flower.

The Empress of India is the costliest of all the amaryllis, but it repays its cost. The flowers are enormous, of a deep scarlet, banded with orange. It is a royal plant without question.

Amaryllis formosissima is a rich velvety crimson with a green band through the centre, and it gives one a sense of luxuriant pleasure to look upon it.

The pure white, fragrant amaryllis is called Ismene. Pale beside its more gorgeous relatives of royal coloring, it is nevertheless valued because of its fragrant daintiness.

The zephyranthes belong to the amaryllis family. I have a large pot filled with a dozen or two bulbs for summer blooming. The red, pink, white, and yellow flowers are very dainty.

Some day I hope to see a clear yellow amaryllis. All shades of red and the white we have,—a yellow would be the touch of novelty in this wonderful family.—American Gardening.

GERANIUMS FOR WINTER BLOOMING.

GERANIUMS do very much better than bulbs for me in the window in winter, and bloom almost constantly. Some of mine are five and six years old; others were slipped last summer. All intended for winter-blooming are kept in pots the year around. The six-year-old plants are now in quart pots. During the summer they stand on the east side of the house, where they get the sun a part of the day. I trim them well back, cutting off every bud, and do not allow a bud to remain on them during the summer. Late in July or early in August I repot them, giving good but not rich soil, and using a size larger pot if needed. Trim back again, giving them water enough to keep them in good condition. Early in September they are placed on the veranda. Late in September they are placed in their winter home. They get accustomed to the indoor air before the fires are started, and never lose their leaves, as is usually the case if brought directly from outside into a heated room. Mine bud and bloom at once. Experience has taught me that to bloom in winter a geranium needs a small pot, not too rich a soil, and a good summer rest—that is, a non-blooming period. Mad. Bruant is a lovely geranium.—Park's Monthly.

GLADIOLUS FREAKS.

REFERRING to the article on page 271 of your July number, I am pleased to notice the interest of Mr. Latchford in the natural tendency to variation in plant form, due entirely to hybridity.

Having originated by cross fertilization over 250,000 varieties of the Gladiolus from the choicest parentage obtainable, many curious variations have resulted from the blending of this mass of diverse chemical constituents.

Duplicature of petal is not uncommon, nor is it confined specially to any variety, although there are varieties that show a greater tendency in this direction.

Another form peculiar to some varieties in the Burbank section, is that of the flowers growing evenly around the spike like the hyacinth.

One distinct hybrid between a red and and a white, divided the plant area between the contending forces, and bloomed all red on one side of the spike, and all white on the other.

Another on the same line of influence, instead of opening regularly from the base of the spike, opened the alternate flowers, that is from one to three, and from two to four, the forces of development clearly working on parallel lines.

A most unique case of variation appeared in a variety of Lemoines novelties, the true ground color of which was an intense scarlet. The variations, consisted of a clear division of the flower to the mid-rib of the lateral petals, the upper half becoming a delicate cerise carmine, the lower remaining normal. The next season the whole flower assumed the new color.

Gandavensis "Tamerlan" has long been obtainable in America, but has been superseded by newer and more beautiful varieties carrying the same peculiar markings. The plants of the newer hybrids also have greater vitality and increase rapidly.

"Multipliant" is a beautiful variety, but like most Gandavensis is materially lacking in vitality. This variety gave me the only twin seedling I ever saw or heard of. The division showed the first season from seed, and the two plants have since proved to be one variety.

H. H. GROFF,

Simcoe.

THE JAPAN IRIS.

THE glorious flowers of the Japanese iris will repay a little extra trouble in planting the roots. We have one splendid bed before us as an object-lesson. In preparing it last fall the soil was dug out for two feet and the trench filled nearly to the top with dry leaves. The rich loam spread above the leaves packed them down so that with about a foot of soil upon the leaves the surface of the bed was still several inches lower than the surrounding surface. Later in fall we spread five or six inches of fresh fertilizer from cow-stalls over the bed. Next spring before and during the time of flowers we kept the bed soaked with water. The leaves held the moisture below the light soil without allowing it to sour, and oh, what grand flowers we had! Near to this bed we have English and native iris in large clumps. The form of these I shall always like best. Kaempfer's iris is bigger and brighter, but not bonnier. —Vicks Magazine.

PLANTING LILIES.

A CARDINAL point in the culture of lilies is to keep them under ground. Order the bulbs early, so that they need not remain long in the importer's storage room; plant them as soon as they are received, and never in subsequent transplanting allowed them to remain one minute longer above ground than is absolutely necessary. Frequent removals of lilies are to be deplored. The bulbs should not be disturbed so long as they flower satisfactorily. Root growth for another season begins as soon as the tops die down. The hardiness of lilies is usually over-estimated. As a general thing they suffer from shallow planting and often the necessary winter mulch is forgotten. Lilies should be covered at least four inches in a heavy soil, and from six to eight inches in a light one. I plant my lilies in pure sand, and mulch them after the tops die down with cow manure, over which later on is spread a thick layer of half-decayed leaves. The lillies are planted along the shrubbery border, with special "pockets" of sand hollowed out for them here and there. The foliage of the shrubs protects the roots of the lilies, and their buds and flowers here have leaves enough to form a good background. The shrub-roots also drain the soil all that is necessary. —Vicks Magazine.

IN planting lilies, as everything else, white flowers must not be overlooked; as Ellwanger says, "White is the lens of the garden's eye," and in a class so generally conspicuous for its glowing colors we need the snowy purity of the Madonna lily (*L. candidum*) or the stately waxen blooms of the tall annunciation lily (*L. longiflorum*). * * The use of tall-growing and showy bulbs is singularly effective in connection with shrubbery, the arrangement looks so delightfully natural, breaking as it does the monotony of similar sizes of shrubs or foliage. Certainly, the nearer we approach nature in arranging our gardens the nearer we are to actual harmony; it is rather hard to imagine how we ever could manage to reconcile our consciences to carpet-bedding. It should be a great comfort to the lily tribe to feel that they can never be tortured into an even mosaic, looking more like a few yards of linoleum than a flower-bed. But there are plenty of misguided people still living who admire this form of garden art (?) and until they wake to the error of their ways we shall continue to see bedding plants misarranged after the model of carpets.—American Gardening.

SWAINSONIA.—This plant delights in a compost of peat and loam, with good drainage. If peat cannot be obtained a fibrous soil will answer, prepared by piling sods, manure and sand, and allowing the pile to remain undisturbed until partially rotted, stirring well before using. Pot the young plants in this material, using three-inch pots, and pinch back the shoots and shift into larger pots as growth progresses. Shade in the heat of the day during summer, and syringe regularly to keep down the red spider. If aphides appear fumigate with tobacco. Give support as needed. With good drainage, regular supplies of water, and attention to the above cultural hints, none should have reason to complain of non-blooming.—Park's Monthly.

FREESIAS.

FREESIAS to bloom by Christmas should be planted in August or September, as it takes them four or five months to reach blooming size. Freesias are seldom planted as early as they should be. I have been told by one who is very successful with freesias, that to keep the bulbs in good condition, they should never be thoroughly dried out, as they easily loose vitality. The soil cannot be too rich if one wants fine, large flowers. Soil which is composed of old, thoroughly decayed leaves and manure, with a very little wood ashes is good. Use deep pots, well drained. Put in bulbs about two inches apart, and cover fully an inch. Water sparingly until shoots appear. You need not put them away in the dark for roots to form, but keep in any cool, shady place in yard or house After the shoots come through gradually bring the pots to the full sunshine, and you will have strong plants, standing up erect. Keep well watered and grow in the full sunlight, as they are much more fragrant when grown in a sunny position. Also be careful not to wet the blossoms, as that will lesson their fragrance. Rich soil is said to give highly colored flowers.

To buy small inferior bulbs will only cause disappointment, as they cannot produce the fine blossoms that the large bulbs will. Put six or more mammoth bulbs in one pot, and you will be richly rewarded for all your trouble and expense.

THE JONQUIL.

THE species and varieties of Narcissus jonquilla, are popularly known as "Jonquils" and possess many points of similarity with the small flowered section of that very extensive genus. Although they do not present a great variety of colors, yet they are highly prized for their charming, golden, fragrant flowers, which are freely produced. They are perfectly hardy, and may be successfully grown by anyone in either the flower border, greenhouse or window garden. And as the bulbs can be procured at a very moderate price, they well deserve all that can be said in their praise.

The bulbs can be planted any time from September to December, although it is best to plant them as early as possible In potting let three or four bulbs, according to their size, be placed in a four-inch pot, and if large masses are wanted, larger pots or pans, and more bulbs can be used. In potting let the pots or pans be properly drained, and use a compost consisting of two-thirds turfy loam, one-third well decayed manure and a fine sprinkling of bone dust. Mix well and use the compost rough. In potting fill the pots or pans to within three inches of the top, then set in the bulbs, keeping them a few inches apart, and then fill to within half an inch of the top. Water thoroughly and place in a cool, dark cellar to make root, watering when necessary.—Vick's Magazine.

Our Affiliated Societies.

FLOWER SHOW IN CAPE BRETON.—Mrs. George Kennan, of Breton Cottage, Baddeck, sends the following account clipped from Halifax Chronicle, of a flower show in Baddeck managed by a young ladies' club, which might do credit to the management of some of our affiliated Horticultural Societies.

"With a view to encouraging the cultivation of flowers and the ornamentation of homes and grounds with blossoming plants and shrubs, the Young Ladies' club, of Baddeck, decided about a year ago to have a flower show, with prizes for the best specimens of cut flowers and potted plants. Although a flower show was then a new thing in our village, and our flower growers had made no special preparations for it, the display of blossoms and plants was so good and excited so much interest that the club decided to have another similar exhibition this year. Inviting the co-operation not only of the towns people, but of flower lovers in all the surrounding country, the young ladies of the club went energetically to work in July, and on the 2nd of August had their show in complete readiness for public inspection. When the doors of Masonic hall were thrown open at two o'clock last Wednesday afternoon, the decoratio s of the spacious room and the extent of the floral display were a complete surprise, even to those who had expected most. The upper part of each side wall was appropriately ornamented with gardening implements, arranged in tasteful geometrical patterns; along the dado underneath ran a long shelf, banked with moss, which supported a dense fringe of blue speedwell, yellow Canada lilies and tall leafy perennials of various sorts. The stage was set with a garden scene, representing a flower border with achillea, panther lilies, Siberian fox-glove, larkspur and aconite, growing against and half concealing a rustic fence. Upon narrow green terraces, under and in front of the stage, were massed a hundred or more blossoming house plants, flanked by huge clumps of larkspur and spiry fox-glove seven or eight feet in height; and near the centre of the hall, in the shade of two leafy, white-stemmed birch trees, was an artificial pond, filled with blossoming water lilies and bordered by a dense growth of wild flag, interspersed with ferns, English and Japanese iris, the white and purple spikes of fringed orchis, and many other aquatic or moisture-loving plants.

On green tables, set around the sides of the hall at acute angles to the walls, were hundreds of vases and pots of cut flowers and blossoming plants, most of which had been entered in the competition for prizes. Among the flowers exhibited were roses of many kinds, annual poppies in great variety, phlox' mignonette, eschscholtza, potentilla, calendula, alyssum, digitalis, ageratum, aconite, speedwell, white lupine, Young's evening primrose, clematis, lychnis, cornflowers, Canterbury bells, mallows, anemones, Cape hyacinths, nasturtiums, sweet peas, marigolds, herbaceous, spiraeas, hollyhocks, dahlias, annual chrysanthemums, and half a dozen or more varieties of lily, including elegans, Canadense and auratum.

Mr. J. H. Harris, of the Nova Scotia nursery, Halifax, who manifested a most cordial interest in the exhibition, not only sent a fine collection of cut flowers, including cannas, dahlias, Cape hyacinths and auratum lilies, but presented the club with a large number of small potted plants, to be distributed among people who had no flowers, the club, at the same time, offering a prize for the plant of this collection that should show the best care.

Flowers and potted plants were also sent to the show from places in the country as far away as Middle River and St. Ann's, and after having been carried twelve or fifteen miles in jolting wagons some of these country flowers took prizes.

At four o'clock on the first day of the exhibition a procession of pretty and tastefully dressed flower girls marched with flower baskets through the hall and around the square in which stands the Telegraph house and the Bras d'Or house, and in the evening there was a floral tableau, arranged to illustrate a poem read by Mr. Alexander Graham Bell, and written for the occasion by his father, Mr. Alexander Melville Bell, of Washington, D.C.

On the evening of the second day the decorated flower show posters, painted by members of the Young Ladies' club and already used as advertisements were sold at auction, and the Hon. J. J. McCabe announced from the stage the names of the prize winners in the flower competition.

Great interest in the show was manifested both by tourists and towns-people and the attendance on both days was very large.

PICTON.—We must commend the energy of the directors at Picton, who have just completed their arrangements for a summer flower shower. The following is the circular just sent out (Aug. 9th) to the members. The idea of a promenade concert is an excellent one, for the flowers give topics for conversation, and the music enlivens everybody. The plan of sending out a conveyance

to collect the flowers and plants, and return them after the exhibition is a capital one; when the money is equally distributed instead of giving special prizes, the Society must do this to ensure a large exhibit. The following is a copy of the circular :—

PICTON, ONT., 9TH AUG., 1899.

The Society propose holding a Flower Show and Band Concert, in connection with the Citizens' Band, in the Crystal Palace on the Agricultural Fair grounds, on Tuesday evening, the 15th inst. It is expected that three bands will take part in the Entertainment, making a promenade concert, which together with the exhibition of flowers should make the evening a very attractive one.

The Directors respectfully request you to contribute all the cut flowers and potted plants you can, and ask your friends to do the same whether members of the society or not.

The flowers and plants should be at the grounds not later than 3 o'clock Tuesday.

If you will send an answer to the Secretary on the enclosed card, stating what you can contribute, a conveyance will call for your exhibit, if within the corporation limits, and will return same to you in good condition.

There will be competent persons at the Crystal Palace during the day to arrange the plants and flowers.

Please do what you can to make this Exhibition of flowers and plants worthy of our town.

J. ROLAND BROWN, *President.*
WALTER T. ROSS, *Secretary.*

PICTON.—The Picton Gazette gives the following account of the flower show held by the Picton Society, on Tuesday evening, Aug. 15th.

Whoever has studied the characteristics of the residents of Picton—and has noticed their love for flowers, and the care and pains taken by a large majority of them in adorning their dwellings and grounds with rare and beautiful flowers and plants—will not wonder that the first exhibition of the Picton Horticultural Society, on Tuesday evening, was in every sense a success—was, indeed, a most prominent success. There were, probably, somewhere about 700 people who availed themselves of the opportunity to view the flowers exhibited, and expressions of delight and appreciation were heard on all hands. Prominent among the exhibits were the oleanders and hydrangea shown by Mr. C. S. Wilson ; a 25 year old palm shown by W. P. Despard ; a pomegranate shown by Mr. T. Ross, Secretary of the Society ; and other beautiful and rare plants shown by several of our citizens. There were geraniums in abundance. The exhibit by Mr. A. M. Terrill, florist, was exceptionally fine. A feature of the show was a collection of flowers shown by members of the society from bulbs gratuitously supplied to the members of the Society by the publishers of the CANADIAN HORTICULTURIST.

The exhibit was a very fine one. When it is considered that no prizes were awarded, the exhibition being simply a friendly display, largely as an educational object lesson, to cultivate a taste for the growing of flowers, and thus contribute additional attractions for the home and fireside, its success must be very gratifying to those having the matter in charge. As the inital exhibition the promoters have achieved as much success as they could reasonably expect.

The officers of the Horticultural Society desire to thank the ladies, who so successfully and tastefully assisted in the arrangement of the exhibit ; Mr. Dobson and Mr. Turner for their valued assistance ; Mr. Carson for use of vases ; and the public generally for their splendid patronage, which the society feels is indeed an incentive to future progress.

The Citizens' Band contributed a choice programme of music which was highly appreciated.

A large excursion party came down from Trenton, accompanied by the Trenton Band, and the music supplied by the amalgamated bands was very fine.

WOODSTOCK.—Financially, artistically and socially the opening of the Horticultural Exhibition in the Graham St. rink last night was a brilliant success. An immense crowd gathered in the spacious building and enjoyed to the utmost the flowers, the music and the refreshments. There was perhaps but one drawback—the oppressive heat. It was warm—very warm—and at times the crowd became so congested in front of the platform as to make breathing difficult. But everyone was very good natured, even under such trying circumstances, and the closeness of the atmosphere did not perceptibly mar much of the enjoyment. Neither the ladies nor the members of the committee had spared any trouble to make the occasion an exceptionally pleasurable one and everything possible had been done to contribute to the evening's success. The dreary old rink was transformed beyond recognition. The big, bare walls were covered with red and white bunting and Union Jacks hung round in glorious profusion. Across the ceiling, iron bars and wooden beams were changed into things of beauty with tiny, fluttering flags, asparagus ferns and festoons of colored wreaths. A large platform had been erected at one end of the hall, the decorations about which were particularly effective. Immense flags were hung across the back, conspicuous in the

centre being that of Old Ireland. Strings of smaller pennants radiated from the centre of the platform to the sides, and in the back ground was a table laden with yellow flowers. A wheelbarrow covered with Japanese sun flowers, in the midst of which Miss Muriel Weir sat selling sweet peas, was a pretty sight. Indeed the artistic effect of the whole building did much credit to the ladies of the decorating committee, Mrs. W. C. Stewart, Mrs. Finkle and Mrs. Dugit. The flowers, plants and fruit on exhibition were much admired.

An excellent musical programme was rendered and was much appreciated by those who could hear it, and they were only those who were fortunate enough to crush somewhere near the platform. D. W. Karn was the efficient chairman of the evening. Madam Hausch (1st violin), Miss Gurli Hausch (2nd violin), Mrs. Orr (harp), and Mrs. Gurnett (piano), gave several splendid selections. The quartette is well balanced, the artists playing with excellent taste and refinement of expression, extreme care marking the variations of light and shade. Miss Powell's solo, "The Jewel of Asia" was heartily encored as was the duet by the Misses Murphy. Mrs. Merritt, with violin obligato by Mr. Tindale, rendered "Doris" with great sweetness and responded to prolonged applause with a piquant little encore. Everyone was glad of the opportunity of hearing Mrs. Ridley of London, Eng., again, her clear soprano voice showing to excellent advantage in Dudley Buck's "When the Heart is Young." Miss Hogg sang "Ma Honey"—a piece well suited to her contralto voice, in an effective manner. Solos also from Mr. Sykes and Mr. McLeod, familiar favorites, were well rendered and well received. Miss Muriel Weir, in a sparkling spanish gown scored one of the successes of the evening by her beautiful dancing. The little lady was exceedingly graceful. Miss Bushby and Mr. White were the very capable accompanists.

A pleasing part of the evening's entertainment was the dispensing of refreshments by the ladies. Candies, ice-cream, cake and lemonade were sold for the benefit of the hospital, and a rushing business was done in the sale of toothsome wares.

The receipts of the evening amounted to about $50.—Sentinel Review.

KINCARDINE.—The above Society has decided to hold its third Annual Exhibition in the Town Hall, Kincardine, during the day and evening of Friday, September 8th. To ensure success it is very necessary that you as a member should do your part towards the exhibition by a liberal display of flowers, foliage and flowering plants. You will please note that any healthy plant will be gladly accepted for exhibition. There must be a large display. A collector will call upon you on Thursday, September 7th, so please have your exhibits in readiness for him. The greatest care will be taken of everything. Mark your pots for identification. On Friday evening a promenade concert will be given in connection with the exhibition. All members contributing plants or flowers are entitled to one ticket of admission to the hall. General admission, 10 cents. The directors have decided that between the hours of four and five o'clock in the afternoon of Friday the school children will be admitted free. Some of the teachers must be in attendance with the children.

S. W. PERRY, *President.* JOSEPH BARKER, *Secretary.*

THE rubber tree is a good pot plant, and it grows well planted out in the garden during the summer. As a rule, however, it is not advisable to remove it from the pot. A good soil for it may be composed of three parts good fresh loam, two parts leaf-mold, and one each of sand and well-rotted manure. This plant does well as a window plant, winter and summer, and is a good veranda or porch plant through the summer. It makes its growth mostly in the summer, at which time it needs a liberal supply of water, but the pot it is in should have good drainage. The leaves should be wiped or sponged frequently to keep them clean, and prevent red spider or mealy bug finding lodgment. The leaves are quite capable of sustaining themselves, and there is no danger of their falling off until they become old and yellow.—*American Gardening.*

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE BRANTFORD SOUTHERN FAIR. Geo. Hately, Sec.-Treasurer, issues a fine prize list of $4,000 in cash, in a neat pamphlet form. The Horticultural Department is an especially full one.

IN GRADING ASTRACAN APPLES for experimental export we have made four grades, as follows :—(1) Small, meaning apples, measuring from 2 to 2¼ inches in diameter, which are the smallest that ever should be exported. These were perfect apples, of high color, and very choice for the dessert table. This grade was packed in our regular half case, 4½ inches deep, and which contained just 120 apples. (2) No. 1, meaning apples, 2¼ to 2½ inches in diameter, in same case, containing just 80 apples, and (3) A No. 1, meaning apples, from 2½ to 2¾ inches in diameter, of which 64 go in a case. The later and firmer varieties will go in bushel cases.

THE BOSC is a favorite late autumn pear with some growers. Bassette writes in R. N. Y. he has set an orchard of them, because of an old tree 40 years of age, which bore annually two bushels of choice fruit. He planted Sheldon and top worked Bosc upon it, because the Bosc is a poor grower.

THE KOSLOV MORELLO CHERRY seems to be remarkably hardy. Prof. Macoun in his recent report, says that in 1895-6, when cherry trees at Ottawa were killed out generally, this variety was an exception. It was sent out by the Ontario Fruit Growers' Association in 1890, 24 trees having been sent out by Jaroslav Neimetz, Winnitza

Podolie, Russia. Only five of these have failed, the rest have borne fruit for several years, and we consider it very valuable.

A VERY USEFUL LADDER in the peach orchard is one made after the model shewn in the engraving. Where the land is at all level it is quite easy to wheel this ladder about from place to place, even with two or three baskets of fruit, and it is always safe to climb. So many of the step ladders in use are so heavy as to give one a back ache to carry them about, that it is a pleasure to find one which is easily moved.

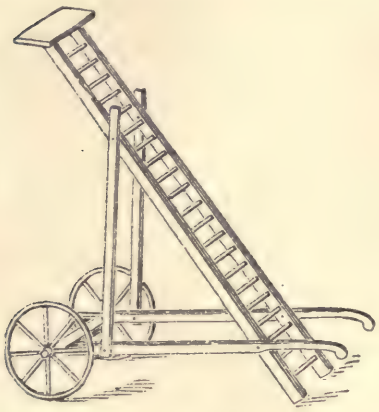

FIG 1654.—A USEFUL LADDER.

THE ENGLISH FRUIT CROP.—The *Gardener's Chronicle*, London, England, dated August 5th, gives very complete reports of the fruit crop, from 350 correspondents. The general consensus is that this year sees one of the worst fruit crops on record. Apples are under the average and bad in quality; and pears are worse still. The same may be said of the plum crop, one of the most important of the English fruit crops, no fewer than 199 correspondents out of 238 reporting the plum crop as below the average, and only 2 as over.

This gives us ground to hope for good prices for apples, pears and plums. The difficulty with us in Ontario is that we have not planted varieties for export, but only for our home markets. We should have just one favorite variety of apples for each season if we would succeed in our export trade in fruit, thus we could begin with the Astracan, and ship in succession Duchess, Tetovka, Alexander, or Wolf River, Blenheim, Crimson Pippin, Wealthy, Ontario and Spy, and thus cover the season with fancy apples.

COTONEASTER VULGARIS is proving itself one of our most satisfactory shrubs at Maplehurst, with its loads of red berries, which hang well into the winter It deserves to be widely cultivated.

GRAPE YELLOWS.—A mysterious disease has appeared in the vineyards in some parts of the province, which seems to baffle the scientists. The leaves gradually turn white, the vine soon becomes unproductive, and finally dies away entirely. Several vineyards about Grimsby have been more less affected with it, and many theories have been advanced to explain the cause. No definite conclusion has been reached.

GARDENING is an art too little understood by us in Canada. In the first place, we in Canada try to cultivate far *too much land* in proportion to their means, and therefore always a part is sadly neglected. We must learn some lessons from our foreign friends, who practice so-called "intensive" gardening, and who aim to make the most of every square inch of ground.

Prince Krapotkine, who has made a

careful study of the subject in France, gives a number of instances in the country districts around Paris, where comparatively ignorant farmers have made small market gardens enormously productive. One farm is mentioned by him of two and seven-tenth acres which produced annually 125 tons of market vegetables of all kinds. The owner of this farm, by building walls to protect his land from cold winds, by whitening the wall to secure all possible radiated heat, and by the constant and judicious use of fertilizers, has his little farm in a productive condition from the first of January till the last of December. By simple and inexpensive means he has practically located his farm in the tropics.

PROF. ROBERTSON called on the Grimsby fruit shippers on Thursday the 10th of August, to make plans for a continuation of the experimental ship ments of tender fruit. Notwithstanding our urgent pleading for it, no grapes are to be forwarded this season, but shipments of early apples and pears will be continued as freely as possible, because in these there is considerable encouragement. This season pears are especially in demand in Great Britian, because of the failure of the English and French crop. It is proposed to ship chiefly to Bristol, London and Manchester, for these are the finest markets for our produce; Glasgow would be included, but sailings are less regular from this latter port.

It is advised that the cases be not filled too full, so as to avoid bruising the top layer in nailing on the lid, and excelsior or other packing is to be used to make the fruit tight.

The grading for this trade will be A. No. 1, apples over 2½ inches in diameter; No. 1, over 2¼; and "Small," 2 inches or thereabout. Pears will be graded similarly, only using 2¼ and 2 inch diameters respectively, while those over 2½ inches will be extra.

Some limited experiments with Crawford peaches may be tried in Veneer grape baskets, to hold one dozen each. They will be packed in cotton batting. Tomatoes are just now too cheap in England to be worth shipping.

A CHEAP HEATER.—So many of our readers are amateur horticulturists, with little or no convenience for keeping their plants safely through the cold parts of our severe winters, that many of them will be pleased to see reproduced from *American Garden*, S. G.'s article and illustration of a cheap heater.

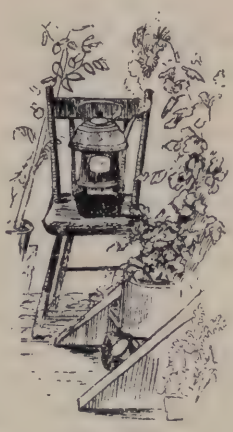

FIG. 1655.

The very picture of the enormous iron monsters advertised, with their many valves and doors, strikes terror to a timid soul, and she gives up the idea of having a greenhouse, for where is the money to pay even for a small heater? But take courage and examine the picture of my boiler, and see if your can't take your beloved plants through zero weather. My conservatory, 6 x 13 feet, with double windows, is connected with the parlor by a large arched door. In

his room is an aldine grate. A register is in the chimney at the back of the conservatory, but the heat is not quite enough, so I have a small oil stove, called the Economist, and a tin tea kettle. After lighting the lamp and filling the kettle the water will boil in ten minutes. Moisture gathers on the glass, and there is a pleasant heat. The plants flourish. I have abutilons, geraniums, carnations and ageratums in bloom, and the chrysanthemums are splendid. Ferns, too, and lycopopium are doing nicely. You have only to be watchful that the lamp does not smoke and the water does not boil out of the tea kettle, and your plant will flourish as well as in a more aristocratic greenhouse.

CONDITIONS FOR WINTER KILLING.—A heavy peach crop in the Niagara District is rather strange after such a severe winter which killed the roots of the trees themselves in many cases. Sometimes the peach buds all succumb at a temperature of 10° or 12° below zero, while the trees themselves are unhurt, but this last winter they have endured 18° below zero without injury to the blossom. Bailey thinks that the ɔɔəq spnqme less hardy in proportion as they are more developed. This explanation is generally concurred in, so much so that of late it is becoming a practise to whiten the buds with lime in early spring to prevent their swelling under the influence of the sun which often shines with considerable power even in winter.

The winter killing of the trees themselves last February was no doubt due to the severe cold which continued steadily for about three weeks, without any protection for the roots of snow or other material. Evidently, the wise thing is to mulch our tender trees well in the fall, or else sow a cover crop in mid summer, to be plowed under the following spring. This latter method is doubly remunerative, for besides the winter protection it is the surest method of enriching the soil and promoting wood growth. At Maplehurst we sowed Crimson clover three years in succession in the month of July, and ploughed it under in May, with a light dressing of wood ashes and bone meal. The portion treated was planted to Spy, Bartlett and Imperial Gage, trees which had a record for being unproductive, this season the finest apples and plums are being produced on these very trees.

APPLES were last year exported to Helsingfors, on the Gulf of Finland, by the Imperial Produce Co., Toronto.

FINE PRIZE LISTS have been issued by the Industrial Fair, Toronto, H. J. Hill, Secretary; the Western Fair, London, Thos. A. Brown, Secretary; the Prince Edward Agricultural Society, Thos. Bog, Picton, Secretary.

THE SEASON OF FAIRS is close upon us, and no wide-awake fruit-grower should fail to inspect the exhibits of fruits whenever possible. Comparing notes in this way is the surest method of learning about the best and most profitable varieties. This is the especial duty of the intending planter, who has not had much experience, and who would make most serious blunders in planting if he did not first inform himself upon the characteristics and qualities of the kinds which he proposes to set in his orchard.

SMITH'S SEEDLING PEACH, No. 1, referred to on page 367 of this Journal for 1898, continues to make a favorable impression. Ripening between the 15th and 25th of August, just between Hales and Crawfords, it fills a gap not filled with any dessert peach of equal quality and size. Samples brought us August 23rd from the original tree, which is growing in Mr. R. T. Smith's garden at Hamilton, averaged 2½ inches in either diameter. The skin is cream, beautifully dotted and shaded with red, and may be peeled off with the finger; the down is very fine, soft and velvety; the suture is distinct and terminates in a small black apex. The flesh is white, tender, juicy, rich and delicious; the stone is perfectly free.

OUR REPORT. After long and patient waiting our subscribers are now receiving our report for 1898. But we are confident that their patience will be rewarded when they review it, for it well possesses exceptional value. Combining four reports in one volume, (1) the Fruit-growers; (2) the Entomological Society; (3) the Fruit Experiment Station; (4) Supt. of Spraying; all bound in cloth, it certainly forms a volume of great value, well worthy a place on the shelves of the best selected libraries. The descriptive work on "Fruits of Ontario" is but in its initial state; it is a work that must take years to complete, if indeed it ever is completed. It is evident that we must have personal knowledge of each variety, both as to characteristics of fruit, and habits of tree, in order to give anything like an accurate description, that will also be of use to others. The writer invites the criticism of the readers of the CANADIAN HORTICULTURIST in respect to his work.

FRUIT DRYING.

There is a large shrinkage in curing green fruit, and comparatively few growers are advised of the actual loss by evaporation. The shrinkage varies with the quality of the fruit and also according to the humidity of the atmosphere in the localities where the drying is done. In the Sacramento and San Joaquin valleys and the foothills of California the following tables are approximately correct, as to the number of pounds of green fruit required to produce one pound of dried fruit:

Apricots, Moorpark,	5½ to 1
Apricots, others,	6 to 1
Peaches, Muir,	3⅝–4¾ to 1
Peaches, Crawford,	5⅓–6⅞ to 1
Peaches, Salway,	4⅛–5½ to 1
Peaches, Cling,	6⅓–6⅝ to 1

The general average may be approximated as follows:

Apricots, all varieties,	5¾ to 1
Peaches, all varieties,	6 to 1
Pears, all varieties,	7¼ to 1
Prunes, French,	2¾ to 1

The general cost of curing fruit ranges from 1 to 2 cents per pound. In the large plants where the investment is considerable and help is hired, the average cost of preparing and curing apricots is 2c. per pound, and on peaches 1½c. per pound on the cured fruit. The cost of cured fruit per pound at different cost price for fresh fruit per ton, allowing for varying shrinkage, is as follows:

FRUIT.	FRESH.	CURED.
Peaches,	20	6½ to 7c.
"	25	7¾ to 8⅜
"	30	9 to 9¾
Apricots,	20	7¼ to 8¼
"	25	8¼ to 9⅛
"	30	7⅞ to 9⅞
"	40	10½ to 12½

—Fruit Trade Journal.

Question Drawer.

Shaffer and Columbian.

1103. SIR,—What is the difference between Shaffer's Colossal and Columbian raspberries? Is the parentage of this variety known? J. M. B.

Shaffer originated with George Shaffer, of New York State, in 1869, and was introduced by Chas. Green, of Rochester. The late T. T. Lyon thought it a hybrid between our two natives, Occidentalis and Strigosus.

Columbian resembles Shaffer very much both in fruit and foliage. It is said to be a seedling of the Cuthbert, grown near Gregg.

Both these varieties are vigorous growers, and the berries very large, purple, in color, and excellent for canning.

Aphis on Honeysuckle.

1104. SIR,—I enclose a leaf from an English "Honeysuckle." The plant is infested with a bug of some kind and we find it covering the vine. Will you please inform me what it is and how to get rid of it?

The insect is a plant-louse, which has produced the honey-dew noticeable on the leaves, and the remedies recommended on the C. E. F. spraying calendar for the apple aphis will be effectual for this one.

J. FLETCHER.

Central Experimental Farm.

Oyster Shell Booklouse.

1105. SIR,—I am sending you a twig cut from a neighboring orchard. Can you tell me what it is? Is it or is it not the dreaded San Jose scale? The tree from which the twig is cut is literally covered with parasite. If it is as destructive as it is ugly, and I presume it is, will you please tell me how to destroy it? Will anything short of burning the tree destroy, and how can I prevent its spreading?

H. H. KING.

Port Hope.

This is not the San Jose scale, indeed it has very little resemblance to it, being of an entirely different shape, the latter is round with a tiny dent in the centre, the former is the shape of an oyster shell. Then, too, the San Jose scale is almost microscopic.

This is the Oyster Shell booklouse, unfortunately only too familiar to Ontario apple-growers. Indeed very few of the older orchards are free from it, and some of them are almost ruined by it. Under each of these oyster shaped scales will be found masses of eggs, varying from 20 to 100, which hatch out in early June, and creep forth to a fresh part of the bark, where they begin sucking and soon become fixed, subsisting upon the sap of the tree. The best means of destroying these scale insects is by spraying with kerosene emulsion. Perhaps the best time to apply it is about June 1st, when the young lice are moving about.

Woolly Aphis.

1106. SIR,—Would you kindly give me a remedy to extinguish the woolly aphis, through your valuable paper. I have tried pure coal oil No. 1 spray (lime, sulphur and salt), also Paris green in bordeaux mixture, but they are thriving better and spreading more every year, and I do not wish their company whatever, although it is very lonely here.

N. BUTCHART.

Port Moody.

This insect, known to entomologists as *schezoneura lanigera*, is of the same species as the apple root louse. It very commonly affects the common thorn bush in Ontario, from which it spreads to various other fruit trees. Under each patch of white down will be found one large female with her young, and late in the autnmn she deposits eggs for the following spring, which are almost microscopes. Both young and old derive their nourishment from the sap of the tree, thus weakening its growth. An excellent wash is made of soft soap reduced to the consistence of paint by the addition of a strong solution of washing soda in water; spraying with kerosene emulsion will also be found efficaious.

✻ Open Letters. ✻

Gooseberries.

SIR,—I should think this would be a good section of the country to raise gooseberries for market. I have a very large gooseberry growing in my garden, I have had it for over twenty years and it never fails to give me a good crop of berries. Mildew is a thing unknown to me, I have never seen it, I do not know the name of the berry in question. I sent you six of them by mail in July, to see if you could give me the name of them. I don't know if you received them. I am also testing some other varieties, viz.: The Downing, Pearl, Whitesmith, Triumph and Industry. I intend to give these all a fair trial. I don't raise any fruit for market, but I am testing several kinds of fruit.

A. BRIDGE,
West Brook, P.O.

Hardy Roses.

SIR,—In July number of the HORTICULTURIST, rose growers are invited to give a list of hardy roses suited to cold districts. I am able to speak from experience, having wintered about fifteen varieties through last season, which was the coldest for many years, the thermometer going down to 28° or 30° below zero.

The following have proved very satisfactory to me; Madam G. Luizet, Jacqueminot, Paul Neyron, John Hopper, Magna Charta, Earl of Dufferin, Marshal P. Wilder, King of Sweden, and Gen. Washington. This list gives a variety in shade and delicacy of perfume worthy of a place in any garden. All roses are the better for winter protection and will repay the grower for the trouble of laying down. I bend them down, lay a sod on the tops and cover with straw. I would advise amateurs to purchase H. P. roses on their own roots, they prove less troublesome as you are always sure the new growth is flowering stock. I have wintered tea roses outside here with fair success, but they need more care and should be completely covered with sods. I have added some new plants to my list which I may be permitted to report on in the future.

W. A. BROWNLEE.

Report of Plants.

SIR,—I will, in the following give a short report of some of the plants and trees received since the year '73.

'79. Salem grape still living, bears well, rather late for this section, still ripens fairly well.

'75. The F. Beauty pear is doing well, getting to be a large tree, bears heavy, but black spots and cracks open badly.

'76 The Glass plum is a fine smooth bark, thrifty tree, hearty, and is a moderate bearer, ripens late.

'77. The purple raspberry is still on the place, a good bearer, the yellow one is thrown out as worthless.

'78. The hybrid grape (Burnet) is a farce at the best, though strong grower, too late, coarse, sometimes bearing two kinds of berries on the same bunch, divided into two periods of ripening. The small berries are about the size of a Delaware, ripen about a week earlier than the remainder of the bunch, which are a large berry; no use.

'79. The Canadian Hybrid apple is a splendid winter apple; lost my tree; mice girdled it, though it bore a few good crops.

'80. Congres Pear; tree did not grow, but from grafts taken from it I now have a lot of big bearing trees, extreme bearers every year, fruit enormous size, high flavored, little tart.

From the year 1880 I will only report in bulk The winter St. Lawrence apple tree is dead, too weakly to live, caused by having bad, dried up roots. but from grafts taken from it I now have a large bearing tree of excellent winter fruit. The remainder of the trees and berry plants, and so forth, are nearly all dead or thrown out as worthless, excepting the two last plums are living. The Improved Lombard plum of this spring is the best tree I got for a long while; it's making a good growth; I hope to have good luck with it.

Report on fruit in general apples in our section are a very light crop. Pears ditto. Early cherries such as Richmond, were well loaded, but the trouble is, people don't plant enough of that kind of trees, cherries would again do well if more trees were planted. Plums are a small crop, still enough for home use. All kinds of berries are plentiful.

D. B. HOOVER,
Almira, Ont.

The Plant Distribution.

SIR,—I would say discontinue the plant distribution amongst the members or readers of the CANADIAN HORTICULTURIST, and lay out the money to something that will make the Journal more showy by adding well got up lithographs of the best new as well as old fruits; our aims should be in the interest of fruit culture, the plants are very often worthless by being crippled and dried up before they reach their distant receivers.

D. B. HOOVER,
Almira, Ont.

A Report From Ireland.

SIR,—I do not think much of the Gault raspberry you sent me. It seems to be a small, poor blackberry, inferior to what we have wild here in our roadside hedges. I should much like to hear your opinion or that of some of your correspondents who have tried them, on the Honeyberry. Now I think setting fruit in my garden, and the Iceberg White blackberry, which I think is one of Luther Burbank's raising, though I did not have it from him

W. E. GUMBLETON.

Belgrave, County Cork, Ireland.

Fruit in Lake Huron District.

SIR,—The very cold weather we had the latter part of February and first part of March did a great deal of damage to the wheat fields, but no injury to the fruit, large or small, that I can see in this section. I see that Mr. Race of Mitchell states that raspberries were winter killed in that part; here no harm was done to any varieties We had a good crop of strawberries, gooseberries, currants and raspberries; also a fair crop of cherries, but the birds take a lot of the early sorts; in fact we cannot get any to ripen. I find the Rockport is exempt from their attacks Plums are a very good crop and very free from the curculio; pears are a very light crop, and apples, the most valuable of all fruit, are of fine quality. This year they are very clean and free of the codling moth. I think the severe cold must have settled them and the curculio. Apples are not so very plentiful, but good in quality. A number of the trees had no blossom. The King of Tompkins I have found hitherto shy bearers, but last year they bore heavily and again this year are yielding well. The grape vines were damaged to quite an extent. The hard frost we had gave my boxwood a sad scorching, and injured the Baltimore Belle so badly that there was no bloom. The Deutzia crenata suffered severely. I see by the reports that the Tent Caterpillars have been numerous down east; I find in this section they have been comparatively scarce. Our spring grain of all varieties is a heavy crop; potatoes also will turn out well. The bugs are not very numerous; likely the cold affected them also. We had I might say no spring; it turned from winter to summer suddenly. Although vegetation was late in starting, the growth was rapid when it began. While east of us rain was much needed, in these parts we had an abundance of it, enough and to spare; several heavy rain falls that damaged some of our early potatoes and peas, which together with hot weather caused the weeds to grow rampant, and we could not keep them down or kill them. I am sorry to say that farmers generally don't try to do it, seemingly, not thinking that the weeds rob the soil to a very great extent—so much so that not more than half a crop can be grown on a good many places. It is really disgraceful to see some farms, actually covered with weeds of every description, which are constantly on the increase.

WALTER HICK.

Goderich.

The Export of Peaches.

SIR.—In talking to Mr. Davies Allan commissioner of Cape Town south Africa, on Saturday last, I found out that they ship fruit from there to England in first class condition, although the fruit is double the time on the voyage that ours are. He told me that the secret in shipping peaches was never to let the hands touch the fruit. They have pinchers made for the purpose that fits round the joint of the peach fruit when they give it a gentle twist and the fruit seperates from the tree and it is placed into a shallow box or crate and they never commence to pick until about four o'clock in the afternoon and each box or crate as it is filled is placed into refrigerator cars on sidings run from the main track into the orchards, when filled they are sent on their long journey in cold storage and it takes eighteen days for the peach to reach London England, when they get good prices for the same. Would not a trial of this kind be of much interest to our fruit growers in Ontario.

R. CAMERON.

Niagara Falls South.

DESTROYING ANTS.—Make holes with a crowbar or convenient stick, from six inches to one foot deep and about fifteen inches apart, over the hill or portion of the lawn infested by the ants and into each hole pour two or three teaspoonfuls of bisulphide of carbon, stamping the dirt into the hole as soon as the liquid is poured into it. The bisulphide of carbon at once vaporizes and, permeating the ground, destroys the ants but does not injure the grass. One should remember while using this substance that it is highly inflammable and should not bring near it a flame or even a lighted cigar. Mass. Exper. Station, in Minnesota Horticulturist.

SELECTING FRUIT FOR THE PARIS EXPOSITION.

The following circular has been sent out by the U. S. Department of Agriculture, and may give some useful hints for us also:

To call special attention to the great variety of fruits now procurable in the United States in quantities sufficient for the export trade, it is proposed to install and to maintain during the entire period of the Exposition, a representative exhibit of American fresh fruits. To accomplish this it will be necessary to provide a supply of choice specimens of the more durable fruits (such as winter apples, pears, citrus fruits, cranberries, nuts, etc.), of the crop of the present season (1899) for display at the opening of the Exposition and until specimens of the crop of the year 1900 are available. It is intended that all the more important fruit growing districts of the United States shall be represented in this exhibit and the active co-operation of growers and other persons interested is therefore solicited.

You are cordially invited to participate in this exhibit by contributing specimen fruits of the crop of 1899, grown either by yourself or others in your section, and to prepare to send choice specimens of such varieties as you may desire to exhibit of the crop of 1900 as they mature. The exhibit will be collective, but each contributor will receive the fullest credit for what he shows and the same consideration from the Jury of Awards that he would have if individual space were allotted him. Collections made by States, horticultural societies, boards of trade, shipping associations, railroad companies, etc., will have the same consideration as those from individuals.

KINDS OF FRUIT DESIRED.

1. As the kinds of fruit grown in the different parts of the country differ widely in number, season and character, it is suggested that for the opening exhibit (of the crop of 1899) only such varieties be chosen as possess special merit as market, dessert or culinary fruits in your section. Special attention should be given to standard varieties that are likely to keep well and be adapted to the requirements of the export trade.

Small lots of choice specimens of promising new or little known varieties are also desirable and may be included.

SELECTION OF SPECIMENS.

2. All specimens for exhibition should be selected early in the picking season, as it is of great importance that the specimens be not over-ripe when shipped. Symmetrical, well-grown specimens that are characteristic of the variety in the region. should be given preference to such as are over-grown or abnormal in other respects. Apples and pears should be picked as soon as the seeds turn brown, even if they have not attained full color. All specimens must be hand-picked, preferably into padded baskets and must be free from bruises. They must have their stems attached and be free from insect injury or fungous disease, to be entitled to shipment to Paris. In no case should specimens be rubbed or polished.

QUANTITY.

3. To allow for loss in storage and in transit, a quantity of specimens of each variety should be provided of the crop of 1899. In general not less than one peck of a standard variety of apples or one-half peck of a standard variety of pear, should be sent by an exhibitor. In case of a promising new sort or a little known variety, as few as ten specimens may be forwarded, if in perfect condition. Where collections are made in localities that grow but few varieties and those on a large scale, at least one barrel of each variety should be provided, though the fruit may be in small lots furnished by different individual exhibitors.

CARE AND PACKING OF SPECIMENS.

4. After being picked the fruit should be handled with the utmost care and shielded from exposure to heat or frost. When the collection of specimens is completed, they should be double wrapped with paper and carefully packed in layers in clean, new apple barrels or boxes. The several lots in each package should be separated from each other by large sheets of paper and each should be labeled with the name of the variety, the locality, and the name and address of both grower and collector.

Labels and wrapping paper will be furnished to intending exhibitors without charge, upon application.

SHIPMENT.

5. Each package should be plainly marked with name of shipper and nature of contents, and forwarded by express or fast freight to such storage point as shall be hereafter designated. It is probable that exhibits of this character will be assembled at two or more storage centres, to be held until date of final shipment. In this case your exhibit will be ordered shipped to the most accessible point. Shipping labels, properly addressed, will be furnished.

In order to complete the necessary arrangements for the forwarding and reception of exhibits, it is important that you indicate at an early date the probable number of varieties and quantity of specimens that you will desire to contribute and the approximate date when they will be ready for shipment.

Photographic exhibits that illustrate characteristic features of the horticulture of your region are also desired, and circulars of information concerning such will be sent on application.

THE APPLE CROP.

UNITED STATES.

Messrs. Duncan Bros., New York City, report concerning the. U. S. apple crop as follows :

ONTARIO AND NOVA SCOTIA.—A full average crop, the quality been the best known for several years.

NEW ENGLAND STATES.—A light crop.

WESTERN NEW YORK AND HUDSON RIVER VALLEY.—More apples than last year, of good quality and consisting largely of Greenings.

MICHIGAN.—More than last year and of much better quality.

ARKANSAS, ILLINOIS, MISSOURI AND KANSAS.—From one-quarter to one-third of an average crop. Quality in some sections good, and in others only fair.

VIRGINIA.—A half crop of fair quality.

CALIFORNIA.—A larger crop than last year and of better quality.

These conditions indicate the necessity of great caution in buying this crop. Buyers should use great care in buying and packing and grading, exporting only fine clean fruit, carefully packed and at moderate first cost. The purchase of inferior and carelessly packed fruit, will almost surely be followed by unsatisfactory results.

The following estimate is given by Mr. Arthur P. Fowler, August 5th.

Arkansas	60%	New Jersey	75%
California	75 "	New York	40 "
Corado	50 "	Nebraska	40 "
Illinois	45 "	Ohio	65 "
Iowa	50 "	Pennsylvania	45 "
Kansas	45 "	Viginia	65 "
Kentucky	25 "	West Virginia	60 "
Marylannd	60 "	Wisconsin	35 "
Michigan	45 "	Washington	50 "
Missouri	40 "	Canada, Ont	65 "
New England	25 "	Nova Scotia	90 "

NEW YORK STATE.—The *Rural New Yorker* says:

The apple crop of western New York largely determines the price for that fruit in the eastern markets. The condition of the Baldwins decides the matter, for that variety is in an immense majority. Baldwin has had a hard season this year, and reports are all one way. Taken as a whole, the apple crop from this great section promises to be less than half, and the chief loss is in red apples. Greenings are in better condition, but few people appreciate them. Nature packed some of her richest sauce inside the skin of a Greening apple, but there is a craze for a red skin, and this fine fruit is often neglected. Early apples are promising, but buyers are likely to part with considerable money when they buy their late Fall and Winter fruit. Ben Davis may come to the front as usual, but reports indicate that even this hardy citizen feels the rheumatism in his twigs and branches, as the result of last winter's freeze.

PROPAGATION OF THE GOOSEBERRY.—Seeds for the raising of new varieties, says Professor Bailey, should be sown as soon as well cured in loamy or sandy soil; or they may be stratified and sown together with the sand in the spring. Cuttings six to eight inches long, of the mature wood, inserted two-thirds their length, usually grow readily, especially if taken in August or September and stored during winter in the same way as currant cuttings. Single-eye cuttings may be used for rare kinds. Stronger plants are usually obtained by layers, and the English varieties are nearly always layered in this country. Mound-layering is usually employed, the English varieties being allowed to remain in layerage two years, but the American varieties only one. Layered plants are usually set in nursery rows for a year after removal from the stools. Green-layering during summer is usually practiced for new or rare varieties. Strong plants may also be produced by tip-layering, as in the black raspberry. If it is desired to train the weaker gooseberries in tree form, they may be grafted upon the stronger growing varieties.

SWEET PEAS IN POTS.

I SUPPOSE there is no more popular or useful annual than this; its fragrance and beauty, combined with the diversity of color to be obtained, renders it useful for all kinds of decorative work. Yet how seldom one sees blooms out of season! Many other subjects less beautiful and useful are forced. Yet none are more amenable to forcing or yield a better return. As they are much appreciated here for dinner table and other room decoration I grow a batch in pots, and generally get them in bloom a month before those outside. I have now been picking flowers for a week from plants grown in unheated houses. My method is to sow five seeds in a 60-sized pot about the first or second week in February. These placed in a peach house will germinate and grow steadily and strong, and in due course are shifted into 32's, keeping them as near the light as possible, and supporting the plants with twigs. This year I gave some more pot room, using 16's but so far I have observed no better results than from small pots. Growth is stronger, but they are not so floriferous. When about to bloom I remove them outside and stand them in front of a greenhouse or fence. They produce plenty of bloom till outside ones are ready. If I had much conservatory work to do I should use these, for I think a group of Sweet Peas pretty, graceful, and light, and always command admiration.

The dwarf Cupid, both pink and white varieties, have been much abused since their introduction a few years since; but I like them very much as pot plants notwithstanding their little eccentricities such as dropping their blooms when on the point of expanding, and the very short peduncle. Three plants in a 32-sized pot make a nice bushy little specimen, and for edging of stages and walks and if allowed to grow naturally, without any stakes, they are very effective, and remain in bloom several weeks. Careful watering and a shady and airy situation, when in bloom, will prevent many of the flowers falling.

I have tried most of the best varieties and find them all very amenable to pot culture. I have, this year, in addition to the dwarfs just mentioned, Mars, a brilliant red; Venus, very delicate straw color, a charming flower; Black Knight, one of the best darks I have yet grown; Duke of Sutherland, a dark claret standard with bluish wings; Duchess of Sutherland, pinky-white, blooming pure white when fully expanded; Lady Mary Currie, a delicately shaded bronze-pink, a lovely color; Prince of Wales, bright rose-self, richly colored; Chancellor, orange-pink; Lady Nina Balfour, a beautiful mauve, very effective where this shade is favored; Colonist, a rosy-lilac, very good. These are all produced on long stems and are of a good form.

Copious supplies of water are needed; and weak manure and soot water aid the production of fine blooms.

A very pretty and light arrangement of cut blooms for dinner table decorations may be made by using small, developed growth of Asparagus—now in plenty on outside beds as foliage—associated with the tendrils of the pea itself, interspersing small sprays of Gypsophila elegans. The prettiest possible effect may be produced by the judicious use of these very simple materials.—Gardening Illustrated.

BAKED APPLES FOR BREAKFAST.

THE true, not the new, should be the motto of those who write or speak about the apple —the fruit longest in use by our branch of the human race. There are certain simple principles that must be given, line upon line, precept upon precept, to every fresh generation of men, or rather should be given just about that time that the generation is beginning to lose its freshness and to call on the doctor for remedies. Every well-to-do man of good digestion and appetite tends to eat too much meat every day after his twenty-fifth birthday, and one of the values of fruit, the apple above others, is the ease with which it may be made an "anti-meat-for-breakfast" article. With baked apples and cream and good roast potatoes on the breakfast table, the dish of cold or hot meat becomes subordinate, even if it is not entirely abolished. Men of forty, the age when every man not a fool is supposed to have acquired the right to give medical advice, at least to himself, will relate their various wonderful discoveries and remarkabie self cures just as they had given up all hope; and in general these reduce themselves to this: "I ate less meat, but I did not know it, and I took a great deal more fruit, especially apples."

Baked apples for breakfast tend to reduce the amount of meat eaten, if we are inclined to eat too much, and to supply the system with mineral foods and the digestive tract with acids. People who eat too much food are not to be advised to eat baked apples as a mere addition to the breakfast, and those who need a substantial meal must not let the baked apple interfere with the taking of solid food. As a rule those who eat three meals per diem will wisely have the nicest dish of baked apples obtainable for breakfast. It is a piece of simple wisdom worth pages of ordinary medical literature. The digestion of milk is somewhat delayed by sour fruits, but pure rich cream is not milk, and taken with a juicy baked apple, what dish can be more tempting and wholesome?

If you are twenty-eight or thirty-five, inclined to ring the doctor's bell and talk with your druggist, try this prescription. You may put sugar on the apples, but we shall not sugar coat the remedy with any mystery or any claim to novelty; we merely turn to your good wife or your housekeeper, and ask whether she is careful to give you nice roast apples and cream, and to make the breakfast meat dishes as little tempting as may be.—Amer. Garden.

Our Book Table.

SOUTHERN FAIR, BRANTFORD.—We are pleased to notice that the Directors of the Brantford Southern Fair are giving prominence to the Horticultural Department in their prize lists, a copy of which is now before us, and from which we see that they are offering over $4000 in cash prizes for excellence. We would recommend fruit growers, florists and market gardeners to write to the Secretary, Mr. Geo. Hately, Brantford, for prize lists.

The Ladies' Board of Directors, which has been a feature of Brantford Fair for some years, is again in charge of that department. This year the prizes are all cash with the exception of a high grade lady's bicycle, valued at $75, which is given to the exhibitor taking the most prizes in the Ladies' Department.

Special arrangements have been made with the Railway Co's. for carrying passengers and their exhibits. Particulars are to be announced in the regular weekly papers.

EXHIBIT AT THE INDUSTRIAL EXPOSITION.

THE
CANADIAN HORTICULTURIST.

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FRUIT AT THE INDUSTRIAL.

THE Industrial Fair is about one week too early for a fruit exhibit to be at its best, for while it has the advantage of taking in plums and peaches, it shows our best apples and grapes at a great disadvantage. The best Rogers grapes, for example, have no color, and the finest winter apples, such as Spy and King, are still very green.

The change in the tables to raised shelves instead of flat is very helpful to a display and breaks the monotony of the fruit exhibit; but the shelves should be nine inches wide instead of twelve, and four set of them instead of three, so that there would be no waste of space. The risers also are at least an inch too high.

On the whole, the fruit exhibit never showed to such advantage; thanks to our President, who is chairman of that department.

Our experimental exhibit is beginning to be of real use to fruit growers, and will be more so every year, as the new varieties come into bearing.

This year our apple specialist, W. H. Dempsey, Trenton, shows 140 varieties, labelled in alphabetical order.

Of the older commercial varieties, his Alexander, Stark, Ben Davis, Fallawater and Kentish Fillbasket were exceptionally fine, the last two, Fallawater (though a showy variety) never pays, because not productive enough; and Fillbasket drops too early to be a paying summer variety. His Primates were exceptionally fine, so large and highly colored. They hang from July to October, and no variety of its season is a greater favorite for eating.

Among the newer varieties shown by Mr Dempsey we notice:

Golden White, not a white apple, but striped, large in size, a Russian fall apple, very desirable for its hardiness, as well as good appearance.

Rochelle, another large apple, red striped, very promising.

Winter Banana, a deep red streaked apple, of good size and much promise.

Starr, of good size, yellow with red cheek.

Winter Red, a kind much in favor in Illinois, but which does not show sufficient color, nor possess such quality as to hold its friends.

The *Trenton* is an entirely new variety, which originated some years ago with Mr. P. C. Dempsey, near Trenton, having some of the Fameuse blood in it. It is a fine dessert apple, both on account of its deep red color, and its good quality for eating.

FIG. 1656.—THE WALTER APPLE.

The *Walter* (Fig. 1656) is also a fine apple, striped red, large and productive. It was named after Mr. Walter H. Dempsey, our fruit experimenter for the Bay of Quinté District.

Mr. Murray Pettit, of Winona, contributed a fine exhibit of 102 varieties of grapes, prominent among which were fine samples of Moore's Early, Worden, Delaware, Moyer and Clinton. The bunches were well grown, under average conditions.

Mr. A. W. Peart, of Burlington, contributed a fine collection of bottled black and red currants, preserved in acids by the Secretary. He also showed twelve pyramids of commercial varieties of pears, intended to give to the public reliable information as early as possible. The twelve varieties thus exhibited as worthy of planting are Goodale, Louise, Vicar, Bartlett, Sheldon, Howell, Duchess, Boussock, Kieffer, Anjou and Clairgeau.

Mr. Mr. Burrell, of St. Catharines, showed a mixed collection of 62 varieties of fruits, and among them the following desirable kinds of peaches, viz : Early Crawford, Garfield, Foster, Reeves, Mountain Rose, Barnard, Champion, Old Mixon, Carlisle, Yellow St. John, Elberta and Crosby. He also showed the Augusta grape, a seedling of Concord and Rogers 4, raised by Mr. J. Broderick. The Champion peach is very showy, large and fine cheeked. It also fruited this season first at Maplehurst, and we were much captivated by its beautiful appearance.

Mr. Caston, of the Simcoe Station, showed 54 varieties of apples, including nine of Crabs, all the latter small, but one or two very showy, especially the Florence, so regularly striped with bands of red about the whole surface. His Duchess were fine, a favorite market variety with him ; his Gideon, Baxter, Alexander and Wealthy were also all fine samples. One would think the County of Simcoe especially suited to apple growing.

Mr. John Mitchell, of Georgian Bay Station, showed a very valuable exhibit of 40 varieties of plums, including Chabot, Satsuma, Tage, Abundance and Burbank—Japan varieties, also Shippers' Pride, French Damson, Brunswick, Weaver, Hammer, etc.

Mr. Huggard, of Whitby Station, showed 83 varieties of mixed fruits, including some very fine Clapps, Bartletts, Louise and Clairgeau.

The first prize for Horticultural Society exhibit was taken by Burlington, which showed 225 varieties of fruit, and the second by Louth fruit growers, who showed 125 varieties.

On the whole, the fruit exhibited in classes for prizes was well up to the mark. There were some wonderfully

fine bunches of grapes among the single plates, the largest bunches of Concords we have seen — weighing about two pounds each, and Brightons proportionately large. The former were grown by F. G. Stewart, of Virgil.

It may interest our readers to know a few of the first and second prize lots of fruit, so we give a few samples :

GRAPES, *12 varieties*.—1st prize and silver medal :—J. Haines, St. Catharines. Kinds : Concord, Rogers 44, Agawam, Worden, Pocklington, Brighton, Catawba, Vergennes, Niagara, Lindley, Delaware, Moore's Early. The Lindleys in this collection were exceptionally fine.

APPLES, *20 varieties*.—1st prize :—Frank Onderdonk, Albury (silver medal); 2nd prize :—H. Marshall, Hamilton.

5 varieties for export.—1st prize :—P. McCulloch, Burlington. Kinds : Spy, King, Baldwin, Ribston, Greening ; 2nd prize :—A. R. Brechen, Toronto.

5 varieties for cooking. — 1st prize : — H. Marshall, Hamilton. Kinds : Duchess, Spy, Greening, Alexander, Fall Pippin.

5 varieties for dessert.—1st prize :—P. McCulloch, Burlington. Kinds :—Spy, Ribston, Spitzenberg, Gravenstein, Swazie.

PLUMS, *6 varieties, Red or Blue*.—1st prize : —E. A. Wilson, St. Catharines. Kinds : Ponds-Glass, Lombard, Burbank, Duanes Purple and Bradshaw.

6 varieties, Green or Yellow.—1st prize :—A. Glass, St. Catharines. Kinds : General Hand, Coe's Golden, McLaughlin, Washington, Yellow Egg and Imperial Gage.

PEACHES, *10 varieties*.—1st prize : — John Stevenson, Niagara-on-the-Lake. Kinds : Wheatland, Late Crawford, Mountain Rose, Early Crawford, Fitzgerald, Elberta, Henry's Golden, Reeve's Favorite, Foster, Old Mixon.

A FRUIT EVAPORATOR.

THE G. H. Grimm Manufacturing Co., has invented an evaporator, especially for fruit and vegetables ; a low priced machine which any fruit grower could safely invest in. We always grieve over the amount of fruit which wastes in our orchards and many times we are tempted to invest in a fruit evaporator of some kind, to save it, but the price of the evaporator is the bug bear. The cooking stove size has six trays, giving 7 square feet of drying service, and affords a capacity of two pecks of apples in 12 hours. No. 1 has capacity of 2 to 3 bushels of apples per day, No2, 3 to 5 bushels, No. 3, 10 to 15 bushels, and No. 4, 18 to 25 bushels.

FIG. 1657. FRUIT EVAPPORATOR.

Fig. 1658.—Giant Spruce in Stanley Park, VanCouver.

SOME NOTABLE TREES IN CANADA.

FIG. 1659.—FRENCH THORN ON THE BASTION AT FORT ERIE.

I'll take a branch of it he said, across the
stormy sea,
That roars between New France and Old, and
plant it solemnly.

It will remind and teach mankind
Of pains that blessing bring."

SO cries Count Bois le Grand as in the poet's Idyll he stands beside cross and holy thorn tree in Old France and swears fidelity to his fair, angelic wife. From Palestine the tree had come, a plant from that which supplied the crown of thorns of sacred memory.

Commandant of the Fort at Niagara the Count plants the thorn on the plain hard by. The English begin a long forest march to seize Niagara Ere they arrive "a dame of charms most radiant, the queenflower of the gay capital Quebec, enthralls his heart.

"He loves again despite the pain
And stinging of the thorn."

A hunting party rides gaily along. The thicket stirs before the fair dame. She shoots and finds her victim, no wild animal, but alas! her soldier lover. Tenderly she nurses him but as justice would have it, the thorn spray she wears as a token of contrition, estranges him from her, reminding him of his far-off spouse

Niagara is taken A bitter life destroying thorn it is to the disabled warrior to see the flag of England rise. The cry "O thorn of penitence" bursts from the dame.

"She kissed his mouth,
Fell by his side.
And both lay dead as stone"

The most enduring monument of the French occupation, a group of these trees, though a century and a half has elapsed since their planting, still stands near the Grove of Paradise at Niagara. Our illustration is of one of their progeny on the South Western bastion, Fort Erie.

FIG. 1660.—HISTORIC WILLOW ON DUFFERIN ISLAND, NIAGARA FALLS.

Overhanging the water, there is on Dufferin Island, near Niagara Falls, a weeping willow, a descendant of the trees that kept vigil by Napoleon's tomb and formed a feature of the landscape of which it occurs to us the great commander would have fully approved. For intensely practical and military though his mind was, he had yet enough appreciation for the beautiful and venerable in Nature, to make him, when he was laying down the plan for a great road in the Alps, actually to turn aside its course to avoid an ancient representative of that other grave-yard tree, the Cypress. This tree it may be of interest to remark, was that which a defeated monarch, some three hundred years befores, struck with his sword in childish petulance

There are on the banks of the Detroit river, some pear trees, old and weird of aspect, planted by the French before the year 1760. One of the oldest is said to date from 1705. There is a story that a settler brought from France three seeds in his vest pocket and planted them near Amherstburg. The old trees there now are the children of those which sprang from these trees "The trees are productive," says Professor Craig, to whose writing we are indebted for information about them, "but the fruit is not valuable."

In the famous apple-growing country of the Annapolis Valley in Nova Scotia there are also apple trees still bearing that were planted about the middle of last century. Prince Edward Island can also boast apple and cherry trees set out in old French times

Plum growing, according to Mr. Craig, has been a special industry for a hundred or more years in L'Islet County, some seventy miles north-east of the City of Quebec "Reine, Claude de Montmorency is delicious and peculiar to this region. The Damson plum trees grow in stocky form and produce out of all proportion to their size. The Kentish cherry has through heredity developed hardy forms well adapted to its new home and ripens a month later than the same variety grown at Ottawa."

At the home of the editor of the HORTICULTURIST an apple tree was cut down five years ago, whose limbs had 98 rings, showing its age to be as many years. A Rhode Island Greening here has a record of having one season produced twenty barrels of marketable apples. A thirty year old Yellow Spanish cherry tree on this farm once yielded a crop of 360 quarts The apple tree at Waterloo shown in Fig. 0000, was grown from seed bought from Pennsylvania in 1800. It is the oldest apple tree in that locality. It measures at the base three feet in diameter and at a distance of five feet from the ground two and a half feet.

Of interest are some rare specimens of southern trees found within our borders. There are a few bearing fig trees to be found here and there. They have been successfully cultivated at Niagara, Winona and even as far north

as Goderich. The Custard apple, the Sassafras and the Sour Gum grow in the mild spray laden atmosphere of Niagara Falls. Queen Victoria Park, at the Falls, contains some rare trees under cultivation, among these are the Paulownia, the Chinese Cypress and a fine specimen of the Umberella Magnolia. This is perhaps the only magnolia of its kind in Canada and has beautiful white flowers from four to six inches across in June. At the residence of Mr. Suckling, College street, Toronto, there is a Magnolia which when clothed in its glory of pink and white flowers, attracted a great deal of attention. A tulip tree, some sixty feet in height, grows close to the road on the grounds of the Leslie Bros. Nursery, East Toronto. Hundreds of blossoms which are somewhat like green tulips, make it a sight worth seeing in early summer. Though large for a cultivated specimen, this tree is small in comparison with forest representatives of its species along the Niagara River.

FIG. 1661.—AN OLD APPLE TREE AT WATERLOO.

The forest trees of Eastern Canada are not particularly remarkable for their size or age. They have their rise, progress, and decay in a much shorter time than European trees, and a tree two hundred years old is a rarity. Here and there, however, are trees solitary or in groups, that are worthy of note. On the road between Cobden and Beachbury, in Eastern Ontario, stands a huge elm; near Windsor there are some large ash trees; a great maple, the largest specimen of our national tree of which we know, is a feature of the road from Picton to the sand banks.

The wild cherry, though not a native of this continent, sometimes attains a large size, though to vie with the great specimens some 14 feet in circumference that Pennsylvania boasts, we can only instance in our own country one about three feet in diameter that formerly grew on the shores of Balsam Lake. The oldest Black Walnut in Ontario, of those grown by man is on the farm of Mr. W. H. Dempsey at Trenton and was planted about 1800. Of mature trees in Canada the smallest perhaps is a dwarf evergreen in the Horticultural Gardens, Toronto; though some forty years of age this is only about a foot in height. It was brought from Japan some years ago by Mr. Geo. Anderson a commissioner of the Dominion Government. Japanese gardeners make a large use of dwarf

FIG. 1662.—MAGNOLIA.

trees to blend with the minaiture mountains and lakes they are so fond of in their landscape compositions.

A great contrast to this tiny conifer is the Douglas spruce of our frontispiece, standing in Stanley Park, Vancouver. Some distance from the ground a fairy like balcony of Licorice ferns relieves the gaunt expanse of its trunk. The trees of this park are in general tall and majestic and in some places rise from luxuriant thickets of bracken higher than a man's head. A fine view at the end of the drive in Stanley Park is the subject of our next illustration (Fig. 1663.)

The Rocky Mountain region and the Pacific slope of our Continent have always been remarkable for the size of their trees. There is a story of a gigantic fossil tree alleged to have been found by a party of gold diggers in Nevada in 1860. It lay on the ground and its trunk was 666 feet in length. The "Monarchs of the Mariposa," sustain in later ages the claim of the west to majestic trees.

British Columbia has species of large cone-bearing trees. One of the most interesting of these is the Sugar pine (*Pinus Tambertiana*) so called because its resin, when half burned by the passage of a fire is sweet. Ford notes a fallen tree of this species 215 feet in length and 57 feet 9 inches in diameter. The same writer speaks of pines of a certain species growing on the Columbian river that attains the height of 240 feet.

In running the boundary between British Columbia and the United States the axe-men had in one locality the herculean task of hewing out the line through patches of gigantic Douglas spruce, many of which were 30 feet in circumference and from 200 to 250 feet in height.

In Eastern Canada some years ago two old pines of remarkable size enjoyed a local fame as the Old Man and Old Maid of Kempenfelt on the shores of the bay of that name.

There is an Indian legend that shows very well how the aboriginals the children of the forest esteemed the pine and cedar for their size, stability and length of life. Glooskap was a divinity. "Hearing that they could win the desires of their hearts there went forth men unto him; and all got what they asked for in any case, but as for having just what they wanted that depended on the wisdom with which they wished and acted.

Three brothers journeyed from afar to the isle of enchanting beauty where in three wigwams dwelt Glooskap with Cuhkeo, the Earthquake and Cool-pig-ot a man without any bones. The first of the brothers who was very tall and was vain of his comeliness asked to become

FIG. 1663.—SCENE IN STANLEY PARK, VANCOUVER.

taller than any Indian in all the land. And the second wished that he might ever remain where he was, idly gazing on the beauty of the scene. The third wished to live to an exceeding old age, and ever be in good health.

Then Glooskap called Earthquake and bade him place them with their feet in the ground and as he did so they became, as one tradition declares, pines, and another, cedars. The head of the first now rose above all the forest and he who listens in the wood may hear him murmur,

> " Oh, I am such a great man !
> Oh, I am such a great Indian !

The second too, has his wish, being fast rooted in the ground and obliged to stay there, whilst the third, who wished for long life, is still standing as of yore.

A. E. MICKLE.

Maplehurst.

FIG. 1664 —GLOOSKAP TURNING A MAN INTO A CEDAR-TREE.

THE MOYER GRAPE.

FIG. 1665.—MOYER GRAPES.

IN December 1888, we gave our readers a colored plate and a description of a new red grape, called the Moyer after the introducer, Mr. Allen Moyer, of Jordan. This gentleman had purchased the right of propagation from Mr. W. N. Read of Port Dalhousie, who had originated the grapes about ten years previous by crossing the Delaware with Miller's Burgundy. Mr. Moyer brought us a basket of his grapes which impressed us most favorably as to quality and earliness. Now after ten years more of general experience with this grape, we are able to confirm most of the statements there made concerning it, and being of Canadian origin we are all the more glad that it has made so good a record, and that it holds so good a place in the estimation of the public.

We do not commend it for the commercial vineyard because the vine does not seem sufficiently productive to give large crops to the acre, but no one who is planting a collection for his own table

should omit the Moyer, for, unless we except Campbells Early, a variety this year bearing for the first time with us, we know of no grape of its season to compete with it in flavor. It is not the equal of its parent the Delaware, in this respect but it comes only a few points behind that excellent variety. One quality of the vine is its freedom from mildew, a disease which so often ruins our finest Roger grapes.

The bunches of the Moyer are about the same in size as those of the Delaware, usually shouldered, and sometimes double shouldered; it is fairly compact, though much looser than Delaware.

The berry is very irregular in size, varying from half an inch to three quarters in diameter, which is not a good point. The color is amber, or where ripe, a dark wine color; pulp is tender and juicy and the flavor sweet, rich and excellent.

One great point which gives the Moyer a chance for propagation is its early season. A vine in our experimental plot ripened its fruit this season about the 20th of August, along with the miserable Champion, which has done more harm to the grape industry than a dozen fine varieties can help it forward.

We notice several other varieties coloring just after Moyer, viz., Janesville, Marion, Early Victor, Pearl, and Ohio.

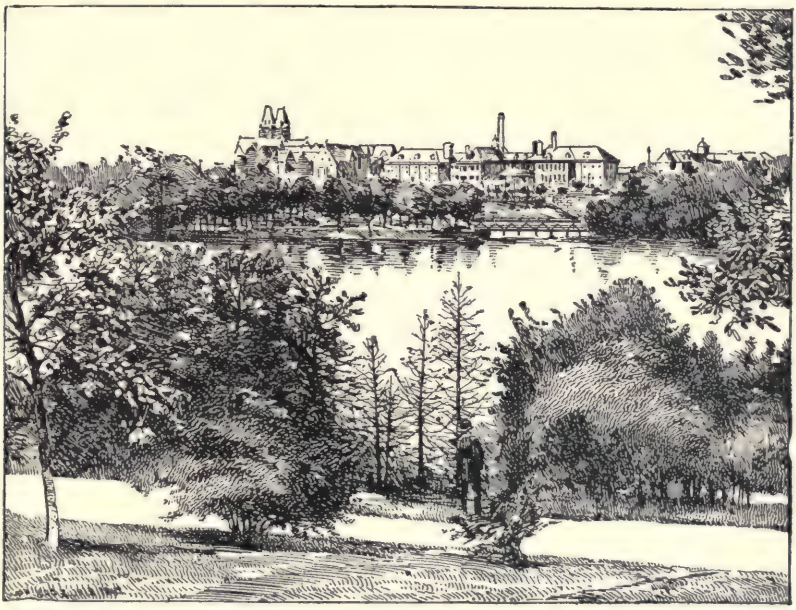

FIG. 1666.—SITE OF THE PAN-AMERICAN EXPOSITION, to be held at Buffalo in 1901; View across North Bay of Park Lake, from near the Country Club, (from Farming.)

THE PAN AMERICAN EXPOSITION, by the colonies and republics of the American hemisphere, to be held in Buffalo, N.Y., from the 1st of May, to the 1st of November, 1901. At this exposition Canada should be very prominent, and we hope that energetic measures will be taken to make a most creditable exhibit. It is said that the management is well prepared financially to make the fair a grand success, having at their disposal $5,800,000.

BIENNIAL MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.

THE 26th biennial meeting of the American Pomological Society was held in Philadelphia on the 7th and 8th inst. The city was in gay attire as the G. A. R. encampment took place during that week. The weather was fine, the attendance good, and taking everything into consideration this was thought to be one of the most successful meetings in the history of the Society. Nearly 150 delegates were sent by the various State horticultural societies, chosen from among their most successful men.

Many of the professors of horticulture of the several experiment stations were also present, and other prominent men. Seldom has there come together at one meeting so many and well known horticulturists.

The exhibition of fruit while good was not representative, the chief exhibitors being the New Jersey State Horticultural Society and Ellwanger and Barry of Rochester, N.Y., the latter firm exhibiting about 100 hundred varieties of pears.

The papers and addressses were all of a high order and showed the rapid advance that horticulture has made during the past few years.

The programme was carried out almost as advertised and the chairman kept the audience strictly to business.

Thursday morning was devoted to the addresses of welcome and response, followed by the President's address, which was very encouraging for the future welfare of the society. Prof. Thos. Meehan in his address on "Philadelphia's Contributions to the History of American Pomology were very interesting, as he told of the introduction and origin of many well known fruits. The talk on "Culture" by Mr. J. H. Hale was such as one would suppose a man of Mr. Hale's force of character would be supposed to give. No half way measures please Mr. Hale, and the striking examples he gave of the advantages of thorough cultivation, were ample proof of the wisdom of his practice.

On Thursday afternoon there were several instructive papers. All who were interested in fig culture were well pleased with Dr. Howard's address. Prof. Waugh's address on "Nomenclature and Systematic Pomology," or in other words, the advisability of some change in the rules regarding nomenclature," received the attention it merited and a committee was nominated to discuss the matter and report at the next meeting of the society. The results of Prof. Lazenby's studies on "The origin and development of buds in certain fruit plants," showed that there was a wide field for research in this direction. Prof. Whittens experiments in the whitening of the buds of trees to retard the swelling of the flower buds in late winter and early spring, were explained in a very clear manner and listened to with great attention.

Thursday evening, Mr. H. J. Webber by means of lantern slides illustrated some of the important work he is doing in plant breeding, especially in relation to the orange cotton plant, and Indian corn. Mr. W. T. Sivinglis' slides illustrating "Horticulture along the Mediterranean" were also interesting. Two other papers were given by Prof. G. H. Powell and Prof. W. M. Munson. Prof. Powell's paper on the "Importance

of the plant individual in horticultural operations" showed that the individual characteristics in fruit were, as a rule, constant, thus proving that it was important to propagate from plants of trees with the best characteristics. Prof. Munson's paper showed the possibilities in growing of blueberries, which is an important industry in some parts of Maine.

On Friday the election of officers resulted in returning the same men as had been in office for the past two years. President, C. L. Waltrous, Des Moines, Iowa; Secretary, Wm. A. Taylor, Washington, D. C.; Treasurer, L. R. Taft, Agricultural College, Michigan.

In his paper on "American Horticulture at Paris in 1900, Col. G. B. Brackett emphasized the necessity of preparing an exhibit worthy of the United States, and of the importance of the fruit industry. Mr. J. W. Kerr, Denton, was very severe on dishonest packers and commission men but did not seem very hopeful that they would do much better in the future. We favoured selling direct where possible, and also trying to induce purchasers to come and buy rather than to sell through commission men.

Prof. Wm. B. Alwood gave some interesting facts regarding fruit growing in Virginia, but lack of time prevents him from fully covering his subject. Prof. John Craig read a paper on the effects last winter on fruit trees in the west. He said that when the roots were protected in some manner there was not so much injury. He strongly recommended cover crops.

On Friday afternoon, Prof. S. A. Beach addressed the meeting on the "Improvement of the Grape," a subject of much interest to many present. The improvement in the native grapes during the past fifty years has been remarkable.

While the papers were all instructive, it was felt by many present that if there had been fewer papers and more discussion from the delegates who had come from widely different climates and varying conditions, more imformation of a practical nature would have been obtained.

W. T. MACOUN.

Ottawa.

BRITISH PREJUDICE AGAINST OUR GRAPES is absurdly strong, and we have a task before us to overcome it. Unfortunately all attempts thus far made to introduce Canadian grapes have been with mixed varieties, of which Concord and Niagara were prominent, and these are extremely poor in quality when compared with the English hot-house grapes. From these our English friends have judged all Canadian grapes unfavorably, and the wholesale fruit men entirely discourage any further attempts to introduce this fruit. Nevertheless we still intend to persevere, but on a different line. The Ontario Fruit Experiment Station Board have authority from the Hon. John Dryden to make an experimental shipment of Rogers grapes to Manchester, and we will forward these about the end of September. This is a kind that is sure to win favor and overcome the present prejudice. At the fruit building of the Industrial, we had a visit from two educated Scotchmen, and we asked them what about sending over our grapes. "Oh," they said, "they are a bad flavor." We handed them a bunch of Rogers 9, and asked them to test them. "Why," they said, "those are fine!" One instance of prejudice overcome already!

THE UNPRODUCTIVE ORCHARD.

ONE of the most discouraging features of fruit growing is unproductiveness on the part of orchards of bearing age of apples. The Baldwin has developed this fault to an alarming extent in some fine orchards in the Niagara peninsula which have been planted twenty-five or thirty years. The Kitchen orchard for example, over thirty years planted has never given more than three or four real good crops and is now being taken out root and branch. The E. J. Wolverton orchard is following after much the same fault, although in 1896 it yielded a tremendous crop. As we remarked in our last article (p. 344) on unproductive orchards, this evil may result from soil uncongenial to the apple; viz., a sandy loam, of such natural depth and fertility that the wood growth is stimulated rather than the fruit production. This is substantiated to some extent by the productiveness of the same variety on clay soil under good cultivation, where the fruit is also better colored. Bailey suggests a startling possibility in his Principles of Fruit Growing, namely that after years of unproductiveness, trees may perhaps become so fixed in this bad habit of unproductiveness that no amount of good treatment can make them bear satisfactorily. Another explanation may be in the propagation of the variety. We all know that certain trees in an orchard have a tendency towards scanty fruit bearing, and cions cut from such a tree would perpetuate the fault. Nurserymen seldom consider this, and cut their scions indiscriminately, and possibly this may explain the wide spread unproductiveness of the Baldwin.

Now for a remedy. First let us say we would recommend digging out the orchard unless it is comparatively young. There is too much value in the fine trees of fifteen or twenty years growth, to throw it away in a brush heap and then begin de novo with new plantings. We would advise top grafting with a variety that is productive. The Ontario, for example, has all the excellence of Spy as winter export apple, and is almost over productive of large even sized fruit. If the unproductive Spy was top grafted with it or some other first class productive variety no doubt the result would be most satisfactory.

THE REPORT OF THE COMMISSIONERS on the San José scale has just been published. The following are the suggestions made:—

"That the utmost care be taken to prevent the scale from spreading.

That valuable trees be not destroyed when it may seem possible to save them without serious risk of infesting neighboring orchards.

That the owners of orchards, especially those who are directly interested by infestation or exposure, be enlisted as far as possible by and with the official workers in the effort to exterminate the scale.

That a brief circular of instruction in regard to the most important facts in the life history of scale-insects, and of the San José scale in particular, and the approved methods of treatment be prepared at once and sent to every orchardist in the infested areas.

That a plan, something like that submitted herewith, be adopted, to encourage every owner of an orchard in the Province to make a careful inspection of his orchard next winter, with a view to discover whether or not there is any San José scale in it."

REASONS OF FAILURE IN SPRAYING.

BY JOHN B. PETTIT, FRUITLAND, ONT.

THE display of sprayed and unsprayed apples that was put on exhibition at the Toronto Industrial Fair by Mr. W. M. Orr, Superintendent of spraying experiments for the Province of Ontario, could not be anything but a most excellent educator to the agriculturists of the Province and more especially to those being engaged in fruit growing. While there were thousands who appreciated it as such, there were many, who claimed to be up-to-date fruit growers, declared that it was not an honest exhibit and that they had personally proved the art of spraying to be a failure. While we do not mean to say that all who have carried on the work have experienced benefit therefrom, it is almost unnecessary to state that the reason of this is not because there is no efficacy in the work, but that the work has not been properly carried on.

There are several reasons why spraying has proved a failure in some instances in the past, the principal ones being :— *(a)* The use of wrong mixtures ; *(b)* uneven distribution ; *(c)* applications made at improper time ; *(d)* lack of thoroughness in work.

In the various papers that have in the past devoted space to the subject of horticulture, there have been many formulas printed, some being correct, while others again have been decidedly wrong. When we consider the success that has attended the efforts of the Government in experimental spraying, we would naturally conclude that the solution used was a proper one, or nearly so. The use of the same has also been advised by most State experimental stations.

That this solution may be evenly distributed, the ingredients must be dissolved and kept agitated. It is a mistaken idea with many farmers, and not a few fruit growers, that as long as the Paris green and water meet in the barrel everything will turn out satisfactorily, and accordingly the poison is weighed (or, what is a very bad practice, *measured by guess)* and then it is thrown into the barrel. This is the careless, lazy man's method, and worthy of nothing but condemnation, as much of the Paris green will float on the water and never become dissolved, and as a result the insects would sustain no injury. To properly dissolve the Paris green, it should be put in a cup or bowl and a few drops of water added to it. Then stir until the water is taken up and add a few more drops. Keep this up until you have a thin paste, which will be but a very short time, and every particle of the poison will be thoroughly dissolved. Then put it in the barrel of water.

To dissolve the copper sulphate, it should be put in a coarse cloth or leno and suspended in *hot* water. Keep it *hot*, and it will take but a few minutes to get it ready. Be sure it is dissolved in a wooden receptacle, as the sulphate would ruin any metal vessel. When these ingredients are thoroughly dissolved and lime is slaked, all are mixed, passed through a screen into the barrel and kept thoroughly agitated, and even distribution of the poison is assured.

As to the time of spraying, the orchardist should give considerable thought. Many insect eggs hatch before the buds burst and the young feed upon the swelling buds. As these worms are more easily killed when small than when they have attained full growth, it is advisable

to give one or two applications before blooming time. This is also the best time to combat fungus. To be effective against the Codling moth, the apple's worst insect enemy, the applications should be made immediately after the bloom has all fallen, and then again ten or twelve days later, before the calyx cavity has closed up, as it is in this cavity the most of the worms are killed. Care should be exercised to select a time when the air is quite still, and when appearances point to at least two or three fine days to follow, and spray with the greatest care.

But of all the reasons of failure in spraying, the last mentioned—"lack of thoroughness in work"—is the most prevalent. Some men appear to think that as long as the solution is thrown at the tree the work is done, but it must be remembered that "whatever is worth doing is worth doing *well.*" Every part of the tree should be covered, from the point where the soil encircles the trunk, to the tips of the longest and highest limbs. The trees should not be drenched, but *sprayed.* If one holds a piece of glass over the mouth of a teakettle, it soon becomes covered with what appears like a heavy fog or dew. Hold it a few seconds longer and the dew will drop off in the form of water drops. Just so will the solution act upon the leaves of a tree. When the leaves and branches become coated with the spray the tree should be left, as but a very little more will cause the solution to begin to drip; it will then run to the edges of the leaves and drop off, and they will simply have had a wash, and the insects will eat away unharmed. That this may be done successfully, the spray must be broken up into *very fine* particles. To thoroughly spray trees, it is necessary to have a good spraying outfit. The pump must have great power, the hose and extension must be of good length, and the nozzles must break the spray into very minute particles. At this work one should act as at voting time—"early and often."

With the exercising of more care in the preparation of solutions and applying the same, better results would follow, and many who now condemn spraying would be loud in its praise.

NOTE.—The writer has had charge of the Government spraying experiments in the "Eastern" division for two seasons and has had ample opportunity to prove the effectiveness of thorough spraying.

THE ROYAL HORTICULTURAL SOCIETY OF ENGLAND.

THE Royal Horticultural Society of England being very old and most favorably located, is very strong. There are now about five thousand members. These pay in membership fees and in special funds about $30,000, or $6 apiece yearly; something like $15,000 more is realized as receipts at their shows, making an annual income of $45,000.

Amateur science is a great fad in England. Many wealthy men take up science for science's sake and make much out of it. Numerous men of comparatively small incomes also make a specialty of some line. Preachers, bankers, merchants and even prominent brewers have their specialties, in which they have gained more or less eminence. Many of these men have been interested in botany, entomology or some other line associated with horticulture, and they naturally sought the congenial atmosphere of the horticultural society and of the various gardener's clubs, which abound in England. While these scientific men form a very interesting group of the membership, the society is made up largely of growers of flowers, fruits and vegetables.

There are not so many professional scientists in England as one would expect to find, especially in the sciences related to industries. Private enterprise having assumed to develop, direct and control things scientific, parliament and the lesser legislative distributors of the moneys accruing from public taxation have not undertaken to build up great government schools, experiment stations and scientific laboratories. We, coming after them and seeing the great need of scientific development, have begun to push these institutions with public moneys. While our people are still in the stage of hastily getting riches, and individuals are not ready to take up all the burdens of higher education and of research, our states' taking hold of these affairs has tended to curb private enterprise. I wish we might do more to encourage amateur scientific research of a high class. Numbers of these English amateurs have done wonders in making new flowers. What could some of our bright young business men or professional men do to make their spare moments pleasant and of use, better than to work up something useful? The country homes of these wealthy amateur scientists are places of joy to the visitor.

We have much to learn from English life. They live more. They are not in such haste to leave the country for the city. I trust that the entrance of girls into our superb agricultural high school is a most important step looking towards better living in our farm homes.

Besides holding meetings and shows, the Royal Horticultural Society issues many reports and does much to promote the work of horticultural scientists. It has trial grounds where new things are tested, and if found of superior merit given certificates. Certificates and prizes are awarded at the shows also. Horticultural schools and horticultural professorships are much in the back ground, that field being occupied by the amateur workers. What little government aid there is doled out is in the main given in small parcels to various general educational schools. We are bound to lead them in horticultural

pedagogics, and their best men sorrowfully admit the fact.

While we may be able to push ahead of them in the science of horticulture, we cannot hope to do so in its practice. Their long training, their cheap labor, their more salubrious climate, their larger markets and their long experience with the things they are growing, give them the lead. Then, too, they are here near this great centre where the libraries, the botanic gardens, the large meetings and the much communication permissible by their short distances, enables the individual to learn much from others. As I listened to the venerable men of their society tell of the growth and achievements of the organization, I thought of the reminiscences of our older members. Taking everything into account, the Minnesota Horticultural Society has done a wonderful work for the people of the state. If Uncle Harris and his elderly fellow members of the Minnesota Society could be in the meetings and shows of the Royal Horticultural Society, they would go home feeling none the less proud of having led in the growing of apples, plums, small fruits and flowers in the north star state. Peter Gideon would have felt at home in the international conference of plant breeders. His intensely practical work would have interested these men, many of whom see only the scientific principles involved.

The Royal Horticultural Society did a good thing in calling this conference. The American representatives have their heads together for a similar meeting on our side. I only wish we might have it in Minnesota. Plant breeding is in a great boom. The Americans were complimented for their keen sense of the practical. Later on I hope to present to the society a brief report of the plant breeders' conference.

The English people constantly express their warm feeling of friendship for America. They did this constantly in the meetings and banquets and before the representatives of other nations, I sometimes feared to the discomfiture of the latter.—*Prof. Hays in Minnesota Horticulturist.*

POTATOES.

OF Plums, we have the large, the small, the long, the round, the black, the purple, the red, the yellow, and other colors; and in flavor, the acid, the rough, the smooth, the sweet, and the rich, fine Gages. Varieties to please the eye, suit the purpose, and the palate.

And so with our Pears — varieties for all, from the hard, perry-making, to the scarcely less hard baking Pear; the musky, the vinous, the sugary, the buttery, and juicy; some large, some small, some round, some oval, and some pear-shaped; but, like the Plum, each so differentiated from the other as having among them something to suit the most fastidious.

And again in the Apple, what a multitude of sizes, colorings, shapes, and textures; some semi-sweet, some semi-acid, some with just "a thought" of bitterness, some soft, some crisp, some hard (so much so that they might well be called the Dentist's Favorite), some rough to the eye, as Russets, with a pineous flavor; some smooth and brilliant in skin, pleasant to look at, but only just a little good, and some with not much quality but beauty. This is the "*eye-taster*," and these are called *good market* Apples; as though the

public bought twice when they had been taken in by appearance once.

Now, this brings me to my subject. If with all these varieties, fine, luscious, and delightfully-enjoyable fruits, different form, color, and flavor to suit all eyes, palates, and tastes is offered, and fruit-lovers are not made to eat all sours, all acids, or all sweets, either one or the other, with no change or interchange; but such is the pomologist's catering, that it must, indeed, be a continuous indulgence to the fruit-lover in trying to select amongst the many, where no two are alike, that which pleases him the most.

But with the Potato, how changed is all this! We are told, but I am loath to believe it, that one that boils to "a ball of flour" is the right thing, and it must be white, and not yellow; why, I know not. I was praising a Potato a short time since to a grower, when he said, "Yes, it is pretty good; but it won't sell, mind you, for it is yellow fleshed." "Oh!" said I, "then color has something to do with it?" "Just so," said he; "they (the Potatoes) must boil white, and be 'balls of flour.'" "Oh," said I—"but why? I hate a mere tasteless ball of flour in my mouth. I want a Potato with some flavor."

Why not have different flavored Potatoes as we have different flavored fruits? I own in the shape of the Potato there is an advance, but the texture, taste, and flavor, are gone. Why is the "ball-of-flour" man to be catered for entirely, to the exclusion of those who will not have such a kind of Potato on their table? Why are yellow Potatoes not "the right thing?" When I was young, and that is a very long time ago, my brother, John Jenner Weir, F.L.S., etc., and myself, used to look forward to the coming of the new Potato. How we longed for the time. How eagerly we looked for "the coming dish" of the then bright yellow new Potatoes; and for our dinner we wished for, wanted not anything else but these, and—butter; firm in texture, but slightly mealy, and then there was a flavor—a flavor that was not in any other vegetable; a genuine, fine mellow Potato-flavor. Oh! how we and others used to enjoy them with a never satiated appetite. "Oh, those were the days!" But now for some time I have asked for my table some new Potatoes; yes, and have had them! They, "the young" of "the balls of flour" outvie their parents in their want—tastiness. Some were like pulp of an undistinguishable kind in one's mouth, with only the knowledge that it was "nasty"; others with a sort of semi-transparent, sickly, tallowy-look like a consumptive's cheek, and these were at the "improved" price of 4*d.* a pound. No, there has been nothing nice or "potatory" about them! Who eats these I do not know, nor do I care, so long as they are not put before me again as—food. I daresay they are very good croppers, so are called "good market Potatoes."

Not they. A good tradesman must now cater for the public's appreciable taste; rubbish may be bought once or twice, but not often. As it is with me, so with my friends. We will *not* eat the present sort of Potatoes when—"new." What I ask is, let us have a variety of flavor, flesh, or what not; let us enjoy our different textures, tastes, and not be "jumped upon," as it were, when we say we do not like insipid, dry, tasteless, powdery, balls of flour. We do not want such hot flour, but *Potatoes*, and the real quality of the Potato, with a fine and delicate though slight perfume, giving a pleasureable feeling on the palate—that from a tasteless "ball of flour" is non-existent.—Gardener's Chronicle.

CENTRAL EXPERIMENTAL FARM NOTES.—I

HORTICULTURE is a prominent division of the work at the Central Experimental Farm, as a result of which there are many objects there to interest lovers of trees, shrubs, fruits and flowers; and it seems unfortunate that so few have the opportunity of seeing them. Thinking it might prove profitable and acceptable to readers of this magazine who are unable to visit the Farm, or who, if they do visit it, come but rarely, it is proposed to contribute monthly such notes on matters relating to Horticulture as may be deemed the most interesting and seasonable.

Unlike Western Ontario, there was comparatively little winter-killing of trees and shrubs at Ottawa last winter; nor have things suffered so much from dry weather this summer, as in some other parts of the province. July was exceptionally wet, nearly 10 inches of rain falling during that month. August was dry and warm and by the beginning of September rain was again much needed. On account of so much rain falling when the season's growth was nearly finished, followed by warm weather, some trees blossomed the second time this year.

The Experimental apple orchard, now containing more than 600 varieties of apples, furnishes abundant data of interest to fruit growers. The apple crop was light this year, but there was about 150 varieties which fruited. A few valuable varieties which are thriving particularly well, and which are producing good crops this year, are: McIntosh Red, Shiawassee Beauty, Gano, Malinda, and Patten's Greening. The indications are that Shiawassee Beauty is going to be a valuable tree in this section of the country. It is a heavy bearer of medium sized, highly coloured fruit, which hangs well on the tree, there being few windfalls. The quality is very good. McIntosh Red needs no words of praise, it is one of the finest appearing and best dessert apples grown. While not bearing as heavily as some varieties, there are so many points in its favour that it will probably prove in some districts one of the most profitable apples grown.

The Ben Davis seems quite hardy at Ottawa; but the Gano, which resembles it very much, is, I think, the better tree to plant in this part of Ontario. The Gano is much more highly coloured than Ben Davis, though no better in quality. The trees are vigorous and and appear perfectly hardy.

Malinda and Patten's Greening are two promising hardy varieties from the Western States The former is an almost sweet apple, keeping in good condition until April or May; the latter is a large green cooking apple: season, October. Its hardiness, productiveness, and the uniformly large size of the fruit will probably make this a valuable apple in the colder parts of the country.

The collection of plums is now quite large, there being about 130 varieties growing in the orchard, most of which are improved American sorts, especially desirable for certain parts of Canada. Although there were but few plums of any kinds at Ottawa this year, 35 varieties fruited at the Experimental Farm; most of the trees, however, bore but light crops A few of the American varieties which are the most promising, are: Cheney, Wolf, Stoddard, New Ulm, Bicksley, and De Soto. Wyant and Hawkeye are two large varieties; the former, however, is not as good in quality as any of those previously mentioned, while the latter is not perfectly hardy here.

CENTRAL EXPERIMENTAL FARM NOTES.

There are now 169 varieties of grapes being tested. Last year more than 100 varieties ripened perfectly here; this year there will not be many more than 25 varieties ripen, as the season has not been favorable The first variety to ripen was Florence, a grape of inferior quality, followed by Champion, which is not much better.

A catalogue of the trees and shrubs tested in the Arboretum has been issued this month, in which may be found the names, with synonyms, of all species and varieties of trees and shrubs that have been tested here, with notes on their hardiness. This list should prove very useful to those interested in trees and shrubs, and should also prove a guide to nurserymen as to what should succeed in the colder parts of the country. This list may be obtained free on application to the Director of the Experimental Farms, Ottawa.

Very few shrubs bloom in September, and it should not be out of place to again draw attention to that now very popular and widely planted variety of Hydrangea, H. paniculata hortensis *(H. paniculata grandiflora)*. Beginning to flower about the 1st of August, this fine shrub is a mass of attractive bloom until October. To have this shrub bloom to perfection, it should be severely winter pruned and given an abundance of water during the summer. It has been freely planted at the Experimental Farm, and at this season of the year is very attractive, a large bed of them being particularly so. A shrub which is not so well known as the Hydrangea, but which is very attractive in the latter part of September and early October, is Lespedeza Sieboldi *(Desmodium japonicum; D. penduliflorum)*. It is killed to the ground every winter, but makes a vigorous growth of about four feet during the summer, and is covered with spikes of bright, purplish-red, pea-shaped flowers in autumn.

W. T. MACOUN,
Horticulturist, Cent. Exp. Farm.

SPIRÆA VAN HOUTEI.

If further testimony is needed to insure the planting of this shrub in every garden, its behaviour this year should be recorded, for hereabouts it has been a wonder. Four plants, catalogued as "3 feet" and set out in the spring of 1896, were so wreathed with bloom as to nearly hide the foliage, and others noted flowered quite as profusely.

In an old garden filled with a greater and better variety of plants than the average garden, this Spiræa was particularly noticeable for its lack of pruning. Old wood that should have been cut out years ago, not only failed from lack of vitality to bloom well, but obstructed the egress of light and air that would have perfected the struggling younger growth that should have been in its prime, so that no part of the shrub was able to do well; yet both old and new wood "did what they could" to make the world flowery and prove the excellent intentions of this shrub of the people.

If only one shrub is grown, Spiræa Van Houtei is a safe selection; and if a shrubbery plantation is to be made, Spiræa Van Houtei may well head the list.—Gardening.

FIG. 1667.—MR. KERMAN'S RESIDENCE WITH CRIMSON RAMBLER.

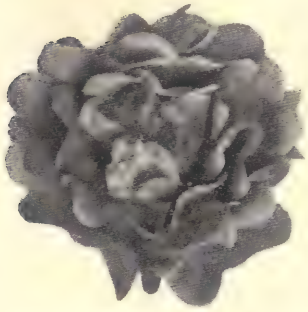

FIG. 1668.—CRIMSON RAMBLER FLOWER.

PASSING Mr. Herbert Kerman's one day in June we were so charmed with his Crimson Rambler roses that we stopped for a view of it to show our readers.

He has eight or ten others climbing beautifully over arches in his garden, and covered with wonderfully large and fine trusses of pretty roses, but the one climbing the verandah best illustrates our present theme, and shows the excellent effect which may be had in two or three years by its use. Figure 1669, shows one of the many trusses of roses which hang in such profusion from every plant and attracted the attention of every passer by. One lady passing in the electric car, in her enthusiasm said to another, "Oh look at them cockscombs climbing up trellises!"

In order to give our readers a correct idea of the rose, we have photographed one single rose out of the many in a cluster (Fig. 1668). We have said a good deal in praise of this rose when promising it to our readers as a part of our plant distribution, but really we have not said enough in its praise, and we hope all our readers may have as good satisfaction with it as Mr. Kerman has had.

FIG. 1669.—A TRUSS OF CRIMSON RAMBLER FLOWERS (*reduced*).

THE FLORAL EXHIBIT AT THE INDUSTRIAL.

FIG. 1670.—BED OF CANNAS AND RECINI AT THE INDUSTRIAL.

IT is not often that such a fine collection of choice exotic plants are to be seen at any exposition, as were on show at the Industrial this fall. The fixing of an exhibition at one central place, in proximity to so many florists and gardeners, and to so many fine public and private collections makes it possible for the Industrial to greatly excel in this respect. The very approach to Horticultural Hall was a triumphant success, bringing much credit upon Mr. Chambers the gardener in charge at Exhibition Park. Our illustrations were taken in 1898, but will serve quite well to show the excellent effects secured by the use of palms, cannas, ricinus, etc., on the lawn outside.

The exhibits inside the Floral Hall were arranged with unusual skill, and won much admiration. The following is a partial list of those collections to which our attention was directed.

12 foliage plants in 10 iuch pots, 1st. prize, Mr. Chambers, Exhibition Park, Deffenbachia, Dracena Lindeni, Maranta Zebrina, Cocos Weddeliana, Pandanus Veitchii, Ficus elastica var., Croton, Anthurium crystallinum, Cissus discolor, and three others.

The second prize went to Mr. Houston, gardener at the Central Prison. We noticed in this collection a fine sample of Livingstonia rotundifolia aurea, Cocos Weddeliana, and several varieties of palms.

50 foliage plants, 1st. prize, Reservoir Park collection, in which we noticed a rarity in a fine specimen of Cycas revoluta (sago palm) in bloom, a Strobilanthus, and an Ophiopogon.

The second prize went to Mr. Cham-

bers of the Exhibition Park, in whose collection we noticed some splendid palms, crotons and marantas.

The third prize went to Mr. Houston, gardener at the Central Prison. In this collection there was a most remarkable plant of Cissus, and the best variegated collection we noticed fine blooming plants of Erica hiemalis, and numerous lilies, album and rubrum.

Mr. Rennie showed a fine collection of gladioli bloom, and took the 1st prize for 10 varieties, and Mr. Houston took the first prize for collection of twelve

FIG. 1671.—AT THE INDUSTRIAL.

croton, viz., Dracena doucethi, probably the only one in Canada.

A pretty feature in Floral Hall was the *groups of plants for artistic arrangement*, and much credit was due for the success attained.

The 1st. prize was given the Horticultural Gardens exhibit; the second to Messrs. Manton Bros., florists, in whose blooms of Waterlilies; Messrs. Manton Bros. took 1st for display of fifty cut flowers, and R. Cameron the 1st prize for 50 hardy plants.

One or two fine specimens of *Acalpyha hispida* were shown, and attracted considerable notice with its long cord-like floral appendages. This is an old plant, re-introduced under the name of A. Sanderi.

PLANTS FOR THE DWELLING AND CONSERVATORY.

FIG. 1672.—FICUS, ELASTICA.

THE flower-loving public is ever on the watch for something new, something wonderful, something they have not seen before, and immense is the capital that at one time or another has been made out of the fact by unprincipled growers in foisting upon the market worthless novelties or old re-named plants and advertising the same with the greatest vigor till the flower buyers have found out the fraud.

True novelties there is always a place for, but it is not always the new that give the greatest satisfaction; in many classes of plants the very old varieties are equally as good as the newer ones that appear each year. We will endeavor to give a short list of plants that are suited to growing in either conservatory or dwelling house. The selection must necessarily be carefully made, for an almost endless variety of plants that flourish in the moist, congenial air of the greenhouse, utterly refuse to do themselves justice in the drier air of a dwelling house. Palms are always among the first plants to be chosen, but they do not always give entire satisfaction on first trial, their culture in the conservatory hardly needs noting, shading should be carefully looked after from April 1st to October, or the sun may burn the foliage, which is a great defect. Excepting the presence of coal gas, there is no reason why palms may not be successfully grown in any window where geraniums will grow. Choose a soil as nearly all leaf-mould as you can procure, put a few pot-sherds at the bottom of the pot for drainage and then

FIG. 1673.—ARAUCARIA EXCELSA.

FIG. 1674 —BEGONIA HAAGEANA.

pot the palm firmly; there is more in firm potting than is usually credited; plants well firmed in potting require less water than if potted loosely, and such plants will make a sturdier and more compact growth. The foliage should be kept free from dust and the roots neither too wet or dry. These plants are impatient of extremes. The greatest insect enemy of palms is scale, and unless a brush is used to displace them, insecticides seem to take no effect; the scales seem to stick so close to the leaves and stems that even powerful remedies do not seem to take effect. For years we have used a solution of whale oil soap and cheap tooth brushes to rub it in and remove the scales. The plants when cleaned receive a spraying with clear water. Fir tree oil would be equally effective as the whale oil and of decidedly more pleasant odor.

The Rubber Plant, *Ficus elastica*, is a good plant; indeed, very few seem to fail to grow it to their entire satisfaction. For table and mantel plants the most enduring of the Ferns will do real well. *Nephrolepis Exaltata*, the Sword fern, is a very fine plant for the house or conservatory, so are nearly all the Nephrolepis. The new variety, N. Bostoniensis, is particularly fine; its strong, quick growth and the fact that with age it attains added beauty, recommends it. The Adiantums are rather difficult ferns to manage in the house unless you have provided a special fern window. The same may be said of the beautiful *Selaginella emeliana*,—it revels in a shady place in the conservatory.

At this time when fern dishes are in such favor, a few words on the subject will be appropriate. Some of the china and silverware dishes that one sees seem to be made for show rather than for use, as no drainage is provided. If you get your florist to fill such a dish, be easy

FIG. 1675.—SELAGINELLA EMELIANA.

on him if the plants begin to sicken at an early date. With the exception of water plants nothing will do well in a vessel where water stagnates about the roots.

Sanseveria Zealanica is one of the most enduring plants we have ever come across; it will stand extremely dry air, and getting dry at the roots does not seem to bother it much either. On the other hand we have seen fine large specimens destroyed and rotted in three weeks by overwatering. *Arauca ria excelsa*, the Norfolk Island pine, is one of the most ornamental of all Conifers; it grows quickly and holds its charming tree-like form surprisingly. It is not hardy. The dwarf Otaheite Orange is a beautiful pot plant; it is hardly ever without flowers, and when the pigmy plants bear a load of their bright, small-sized fruit they are always admired. Geraniums are old-time favorites because of their easy management and persistent flowering.

Cuttings rooted last month and grown along as rapidly as possible will make far better plants for the winter than the bare ungainly plants lifted from the flower beds.

Flowering Begonias are among the most satisfactory plants we can mention. The variety of flowers and foliage is very great; in fact, one might fill a greenhouse with specimen plants, one of a kind, and still not include them all. The old variety, *Metallica*, is the progenitor of a large family of seedlings and hybrids. *Velutina*, which is perhaps the most magnificent of these, bids fair to be eclipsed by the new variety, *Haageana*, the subject of the photo engravure. The leaves of this variety are larger and more handsomely shaded, and the growth is more compact. *Erfordii* is another new gem among the Begonias; a neat compact grower, producing its loads of pretty pink flowers almost incessantly.

WEBSTER BROS.

Hamilton, Ont.

PLANTING HARDY BULBS IN THE FALL.

THERE is no other class of flowering plants that gives as little trouble or can be so successfully managed by the amateur flower-lover as the bulbous class. The culture is extremely easy, as throughout their growing time they require no more care or labor than does a potato to bring it to maturity, and during their time of rest no attention whatever is necessary.

Of all the bulbous plants, the spring-flowering bulbs are most to be desired. These, which are generally called "hardy" or "Holland" bulbs, come into bloom early in the spring, some of them even showing their dainty flowers while the streamlets are still frozen in the woodlands and the snowdrifts hang along the mountain's brow. After months of intense cold, cloudy days and seeming endless nights, there is nothing more pleasant to the eye or that gives more genuine pleasure to the heart than to see the dainty spring blooming bulbs forcing their heads through the recently frozen earth, and defying the ice king to again venture on his death-dealing mission. They come at a time when it is impossible to have any other plant out-of-doors. The house plants cannot stand the frosty nights, the perennials are just beginning to grow, and the seeds of the annuals have just been planted in

some pan or box in a sunny window. The fact that plants giving bloom at this very desirable time are of such easy culture, and that the different kinds of bulbs can be secured at such a moderate price, should induce everyone to plant extensively.

To have a succession of bloom from the time when snow is still to be seen until the last of June, one should plant scillas, snowdrops, crocus, hyacinths, narcissus, crown imperials, pæonies, daffodils, tulips, etc.

Bulbs will thrive in any kind of soil and in any situation, so no one should be without them. While this is a fact, better results are obtained when more care is exercised in the selection of soil and location. A good deep sandy soil gives best satisfaction, located where the bed may receive at least a part of the forenoon sun. In preparing the bed, it should be spaded up deep and made fine. The bulbs should be planted from two inches to six inches deep, and from three inches to six inches apart. The bed should be slightly raised above the surrounding soil, so that water will not settle around the roots and bulbs.

Although most of the Holland bulbs are perfectly hardy, they do much better if they have some protection through the winter. A covering of stable manure over the bed after it is planted in the fall, to the depth of from four to six inches, is the proper thing. This will keep the bulbs from being repeatedly thawed out and frozen up, should the winter be an open one. Besides this, the strength is washed out of the manure down into the soil by the autumns rains, and annually enriches the soil. By this annual covering the flowers are made much larger and of a more brilliant color. Of course, it must be removed as soon as the frost is out of the ground in the spring.

All these hardy bulbs should be planted in the fall, and the earlier they are put in the better. While they may be planted on into November, if the ground is not frozen, far more satisfactory results are obtained from earlier plantings. The bulbs have to make the most of their roots in the fall, before the ground becomes frozen, for as soon as the frost is gone in the spring the bloom makes its appearance, and there is no time for the bulbs to make roots, as, instead of that, the roots must be feeding the flower and producing a new bulb. The sooner they are in the better, as more time is given for root growth, and the stronger the root the larger the flower the following spring. The first of September is the time when bulbs should be planted to give most satisfactory results.

In planting bulbs, do not mix the different kinds in the same bed. Keep the tulips in a bed by themselves, and the hyacinths by themselves, and the same with the other varieties of bulbs. Nothing gives more displeasure than to see a bed of all kinds and sizes mixed. Hyacinths of dwarf growth and tulips with long stems do not look well together. Keep each kind by itself.

Many people take their bulbs up annually, after they have ripened up in the summer, and replant them again in the autumn. This is useless. They should be left in the ground three or four years, and then the clumps should be taken up and divided and replanted. By leaving in the ground year after year finer flowers are produced, and the labor of replanting is done away with. They also multiply more rapidly when left undisturbed for some time.

Every lover of flowers should plant freely of these hardy bulbs, the culture of which is so very simple, and whose brilliant bloom is produced at a time when most desired.—Farmers' Advocate.

ROSES—CHOICE OF VARIETIES, AND WINTER CARE.

IT must be very gratifying to the amateur gardener to see the amount of interest which has developed during the last few years in the cultivation of the Rose, more especially as there seemed to be a prevailing idea that roses could not be grown successfully in this northern climate. I have been trying for the past three or four years to awaken a more lively interest in the propagation and growth of this the Queen of flowers, and think I may add, with some success.

It is from the standpoint of ar amateur pure and simple (what I mean by amateur is one whose hothouse is the open garden, and old Sol furnishes the heat) that I beg to offer a few suggestions :— 1st, as to choice of varieties ; 2nd, their care through the winter.

Hybrid Perpetuals (so-called) are roses that will stand this northern climate with slight protection, even the hardiest is better with a little covering.

I have given considerable attention to the gilt-edge list of Hardy Roses which Mr. Race kindly furnished in last month's HORTICULTURIST, and to say the least, I was somewhat disappointed.

With your kind permission, I will name the following, which I know from experience are worth cultivating :

DARK HYBRIDS.

"Duke of Edinburgh," "Fisher Holmes," "Louis Van Houtten," "Prince Camille De Rohan," "Charles Lefebre," "Earl of Dufferin," "Gen-Jacqueminot."

LIGHTER REDS.

"Marie Bauman," "Capt. Heywood," M. P. Wilder," "John Hopper," "Sir G. Wolseley," "Lady Helen Stewart."

PINK.

"Mrs. J. Laing," "La France," "Magna Charta," "Madame Gabriel Luizet."

WHITE.

"Margaret Dickson," "Mabel Morrison," "Merveille de Lyons," "Marchioness of Londonderry," "Perle des Blanches."

The above list, taking all things into consideration, I believe to be as near gilt-edge as you can get.

I do not claim all this list will stand a temperature from 10° to 30° below zero ; but I do claim, that if a few handfulls of long straw are placed lengthwise and bound to the bush, and the roots banked up with leaves or long manure, no fatal results will follow.

I would like to say a word in defence of that grand old rose, "La France." Some time ago I remember reading an article in the HORTICULTURIST, which I think did not do justice to this lovely flower. I would like to ask, what are its faults? As a *pink* rose, I doubt very much if it has an equal ; as a constant bloomer, it is as near perfection as you come. There has not been a week during this summer I could not cut the grandest blooms from it. And for fragrance, it certainly is not lacking. To those who have not got this variety in their collection, I would strongly advise to procure soon as possible. Let me add, all my roses are "dormant budded." I would like to give my plan of protecting "Tea" roses, and may possibly do so next month.

J. G. JACKSON.

Port Hope.

THE INDIA RUBBER PLANT.

FICUS ELASTICA (the India rubber plant), is popular as a decorative plant for rooms and windows, as a good specimen from one to three feet high, with thick stem and dark rich green glossy leaves, presents an attractive appearance. With proper treatment they remain some time in this condition, and if grown in a cool shady room the plants succeed better than in a dry and heated atmosphere. One point which helps to maintain them healthy is frequent sponging the leaves so as to free them from dust. This is an easy matter with Ficus elastica Both sides of the leaves should be sponged, using soapy water. The most likely insect to attack the leaves is that little black insidious pest known as thrips, which soon does damage.

The growth of Ficus elastica has the tendency to extend as one stem only, and very handsome plants are formed while they remain within a length of four feet. Young stock may, however, be topped at an early stage, and this will cause lateral growths to break, two or three of which can be allowed to extend for forming plants of a more bushy habit. This is chiefly a matter of taste, and adapted in cases where numbers of plants are grown.

Suitable sized plants may be grown in from five to eight-inch pots. These are useful for room and window decoration, and for the side stages in the conservatory. Turfy loam, leaf soil, sand and charcoal, with the addition of a little peat, form an excellent compost. Plants that have been growing freely the last few months may now require a shift so that they will become established before winter and the pots filled with roots. Pot firmly, making the fresh material as substantial as the ball of roots. The pots ought to be clean and well drained.

Watering is not a difficult matter with these plants, but it is often mismanaged in the case of house plants What is wanted is regular attention, not exactly at stated periods, but some time every day or every other day. Apply water in sufficient quantity to pass right through the ball of roots, and wait until more is needed. Just after potting one good watering will suffice for some time, but when the pots are becoming well occupied with roots water is needed oftener. A fairy light, but not a sunny position, suits the India rubber plant best, and if the house or window is hot, shade should be afforded during the hottest portion of the day, Sour soil caused through errors in watering is the chief cause of the lower leaves turning yellow before they ought to do. It is natural for the lower leaves to fall, but when they do so the leaf-stalk separates readily from the stem.

Another course which will throw the plants into bad health is allowing them to become very dry when the pots are full of roots. If temporarily this should occur, the best course to rectify it is to plunge the plant into lukewarm water in order to moisten the soil and roots completely. When well-established and growing freely cool treatment is the best, but in spring, after repotting, or when propagating, heat and moisture are essential for encouraging new growth.—Journal of Horticulture.

HYDRANGEA PANICULATA GRANDIFLORA.

THE notes which have recently appeared in your columns in relation to Hydrangea Hortensia lead me to refer to another most useful species, H. paniculata grandiflora This one is probably of more value to the florist than H. Hortensia, producing, as it does, its large panicles of white flowers during August and later, when flowers of this color are usually scarce.

It is pretty well understood that, unlike H. Hortensia, this species may be pruned as severely as desired, with no loss of flowers. The result of close pruning is to lessen the number of shoots and increase the size of the heads of flowers. The florist will consider whether it suits him better to have a few large heads or a greater number of smaller ones, and regulate his pruning accordingly.

Left to grow naturally, we get our first flowers in early August, but it may be a useful hint to some to say that a partly broken branch will bloom earlier than others. A slight twist or break given a branch will cause the flower heads to expand sooner, and in this way flowers can be had two weeks before the perfect ones.

To prolong the season, cut back some of the young shoots when about a foot in length, which, with us, is about the first week in June. New shoots will form, which will flower about the time the others are over. Still another way is to set out plants very late in spring. By the time their growth is well advanced the earlier ones will be well ahead of them, and this difference will be kept up throughout the season.

Of the typical form, H. paniculata, not H. paniculata grandiflora, there are two well marked varieties, and one of these, at least, should prove of value to florists. I refer to the early and the late flowering ones. The early one is through blooming before H. paniculata grandiflora comes in The late one comes in with H. paniculata grandiflora. Neither makes the fine display the latter does, but where white flowers are desired the early flowering H. paniculata would be found useful.

The hydrangeas are easily propagated either by green cuttings in greenhouses in summer or by layers in the open ground, the cuttings and layers rooting readily. By these means immense quantities are raised without much expense, which accounts for the low rates at which they are generally sold.—Joseph Meehan, in Florist.

SOIL FOR POT PLANTS.

Any good, rich open, garden soil will answer for most plants, but a soil that is suitable to grow nearly all species of plants usually grown in houses is made by cutting sods from an old field or pasture, about four or five inches thick, piling them up in a compact heap, grass side down, placing between each layer of sod one-quarter in bulk of manure (cow manure is best, but good stable manure will answer. This compost if kept moist will be fit to use in a few months. When well rotted, cut it down and store it for use ; do not sift it, except for fine-rooted small plants, but use it in rather coarse form. The sods can be rotted as above and well rotted manure added when used. This compost will grow almost any plant, and is what is generally used by all plantsmen. If sod is taken from a stiff clay, add a little sand to the compost.—H E. Gould, Sussex, N. S.

Our Affiliated Societies.

FIG. 1676.—NORTH AND SOUTH.
Photo. by A. H. Dingman.

NORTH AND SOUTH.—One of the trees in the above photo is a hardy apple named the Bismark, said to be a native of New Zealand; the tree is about three feet high, and about four years old. The other tree to the right of the picture, is a Southern Florida Orange, about six years old, grown in a pot There are three apples on the apple tree, the size of a large Northern Spy, and also three oranges on the orange tree, weighing about half a pound each.

These trees were grown by Mr. Walter T. Ross, Secretary and Treasurer of the Picton Horticultural Society, and are indeed a curiosity.

We think a good name would be North and South, as the fruits of these two extremes, are brought together in this unique picture.

KINCARDINE —Friday, Sept. 8th.. the third annual exhibition under the auspices of the Kincardine Horticultural Society was held in the opera house. There was a profusion of flowering and foliage plants, all neatly arranged upon tables extending along three sides of the hall, while the stage was artistically set out with beautiful specimens of the florist's care and attention. A pyramid of well arranged flowering plants occupied the centre of the hall. A fine portrait of noble Queen Victoria, draped with British flags, contributed by E. Miller, one of the directors of the society, made a fine setting in the centre of the platform. The work of the Horticultural Society is a good one. It has done more in three years to encourage the cultivation among the members numbering about one hundred, to bring everything to as near perfection as possible. The money expended by the Horticultural Society, goes for literature dealing with horticulture, and securing the best stock from the nurseries. In the afternoon the school children were admitted free. In the evening an excellent program was presented to a good audience. Mr. S. W. Perry, President, occupied the chair. An instrumental duet was given by Misses L. Smith and Ada Gentles; piano solos by Misses Mackendrick, Alberta Murray, Mabel Wilson and Myrtle Huffman; vocal solos by Miss J. Malcolm and Jno McDonald, of Chicago. Mr. McDonald has a splendid baritone voice and he is an accomplished vocalist. He responded to an enthusiastic encore. Miss Miller and Mackendrick were the accompanists. Rev. Dr. McDonald gave a thoughtful and interesting address, closing with a Gaelic solo The Horticultural Society is a flourishing institution.

PORT COLBORNE.—The first Flower Show in Port Corborne was held under the auspices of the Horticultural Society, in Mathews' Hall, recently. The hall was granted free for the occasion.

The centre of attraction was the Children's table of Asters. Such a magnificent collection was never seen in Port Colborne. Early in the summer the Society distributed packets of aster seeds to the children in the Public Schools of both villages. There were six prizes offered in each room for the best blossoms and plants. There were sixty entries, and considering the extra dry summer, this was considered a large number. In foliage plants there were seventy-seven entries, and in fruit and vegetables thirty-five entries.

The exhibition opened to the public at four o'clock and continued till ten p m. From four to six the children of all the schools were admitted free and were entertained with two gramophones, operated by Mr. Cassels and Mr. Kanold.

In the evening a slight charge was made, and the afternoon programme was repeated.

The judges were, for the children's flowers, Mrs. DeWitt Carter and the Rev. J. M. Smith; for foliage plants, Miss Henshaw and Mr. Samuel McCoppen; for fruit and vegetables, Mr. Edwin Boyle and Mr. John Richardson. The competition was keen and many bouquets deserved notice.

The Society ought to feel encouraged to attempt something the same on a larger scale next year. Much credit is due the following members of the committee for their untiring faithfulness and energy in the matter: the Rev. J. M. Smith, chairman; Miss Henshaw, Messrs. E. Boyle, J. McCoppen, E. Milleken, Otto Kanold and S. McCoppen.

No prizes were offered in any department except for the children. In their case a first prize is three hyacinth bulbs, a second prize two, and a third prize one. These will be

got immediately, and the children will see in the papers the date on which they are to apply for them.

CANADIAN HORTICULTURAL ASSOCIATION.—The second annual convention of the Canadian Horticultural Association began Sept. 19th, in Goldsmith's Hall, Spark street, Ottawa. The chair was occupied by the President, Mr. Wm. Gammage of London, and the other officers present were as follows:—Vice-Presidents, C. S. Crim, Ottawa; J. McKenna, Montreal; Treasurer, J. H. Dunlop, Toronto; Secretary, A. H. Ewing, Berlin Executive Committee—H. Dale. Brampton; T. Manton, Eglinton; O. Johnston, Kingston; J. Bennett, Montreal.

Shortly after the meeting opened his Worship Mayor Payment and the Civic Reception Committee waited on the session and gave the visitors a welcome to the city. The address was responded to by Mr. J. McKenna, Montreal.

The President, Mr. Wm. Gammage of London, delivered his annual address. Among other things he said:—"The past season has been one of unusual activity, and we look with pride upon those who since our last meeting have placed upon the market new and worthy varieties of roses, carnations and other plants. A certificate from the society to worthy and meritorious introductions would be a curb to over-zealous introducers and unscrupulous advertisers, and a guarantee to the purchaser that the article had been passed upon and endorsed by competent judges." The report was lengthy, and contained suggestions as to the re-adjustment of the tariff, and expressed the hope that the members would all work with experimental farms, colleges, horticultural societies and park committees to make these a success. All support should be given to exhibitions.

The Secretary's report showed a good membership, but no change from last year. There were no deaths during the year. The report of the Treasurer showed the finances to be in a healthy state, although the association was only in its infancy.

PICTON.—We have several times written the Express concerning the tropical plants cultivated by Mr. Walter Ross, of H. M. Customs, Picton, and after visiting his garden a few days ago, we cannot refrain from mentioning them again. The one great curiosity that is attracting the attention of many fruit growers in the county is a New Zealand apple tree. This tree seldom attains a greater height than three or four feet. Mr. Ross' is about three feet and has several apples about the size of the Northern Spy variety. Another attraction is a fig tree with about sixty large green figs. Then we noticed magnolias, pepper trees, mimosa plants, South Carolina fly-traps, banana tree, and besides many others an orange tree with five or six large half ripened oranges. All these Mr. Ross manages, and brings to perfection without a greenhouse, His collection is ever varied and intensely interesting.

CARDINAL.—The Floral Exhibition given in the town hall, last Friday afternoon and evening, by the Horticultural Society of Cardinal, was a great success and was admired by all who visited the hall. To our Reeve, Mr. R. B. Dowsley, the members ascribe the success of the exhibition, for he it was who had the management of the exhibit. All the members of the society took a keen interest in the display and many who are not members contributed to the exhibit. The town hall was most tastefully arranged and the display in the evening was very beautiful, all the different colors and effects showing up most vividly in the brilliant electric light. To most of our citizens the display was a great surprise and the admiration and interest shown by all who visited the exhibit well repaid the exhibitors for their trouble. The school children were admitted after school on Friday and it was a charming sight to see the little ones wandering in speechless admiration among the beautiful flowers. In the evening the hall was visited by nearly the entire population of our town as well as by many from the neighboring country. The two special prizes were both won by Mrs J. Brennan whose exhibit was unusually fine and testifies to that lady's love for flowers and her energy and skill in caring for them. The special prize given by Mr. R. B. Dowsley for the largest and best exhibit was a beautiful and costly vase.

The president of the society, Mr. Wm. Beddie, gave a special prize, a very handsome jardiniere for best collection of house plants. Among the plants and flowers that attracted the most attention was a magnificent palm from Mrs. Benson's conservatory, a very fine fuchsia exhibited by Miss Monaban, and an extremely fine rex begonia exhibited by Mrs. Gow. The collection of sweet peas exhibited by Mrs. Gow was the most beautiful the writer ever had the pleasure of seeing, and the pansies shown by Mrs. J. Brennan were exceptionally dainty, and most artistically arranged. We have not space however to enumerate all the beautiful flowers that were exhibited. We hope that the society will flourish; for nothing conduces more to the good of a town and the elevation of our youth than the successful work of such a useful society. The work accomplished already has been wonderful, and the society deserves great credit for their unselfish and energetic work in the interests of our town, in cultivating the taste for the beautiful and artistic. Their first exhibition has been successful beyond the fondest hopes of its promoters and we hope the next one will be still better.

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE COLUMBIAN RASPBERRY originated with Mr. J. T. Thompson, Oneida, N. Y.

EXPERIMENTAL FARM NOTES will be a new heading in this Journal. Beginning with October, Prof. Macoun, the horticulturist at Ottawa, will write articles treating of the results attained at the farm, of most interest to fruit growers. This will form a pleasing addition to the subjects treated on by THE CANADIAN HORTICULTURIST.

CHERRIES AND MILK if taken together are counted unwholesome, owing to the amount of prussic acid contained in the former. Especially should over ripe cherries be taken in milk with caution, lest they cause fermentation and much pain. Even poisonous effects might result if taken too freely.

WOMEN are usually found to be the best packers of fruit. Their fingers are nimble, and they have good taste in arrangement. At Maplehurst the apples, pears, peaches and plums are gathered by men, and brought to the packing-house, where the women do the principal part of the assorting, grading and packing. Miss J. L. Buchan is spoken of in the Fruit Trade Journal as the pioneer fruit packer of grapes at Southern Pines, N. C. She has a corps of experienced girl-workers trained by herself, who pick the grapes, trim the clusters, line the baskets with paper lace, and her success is largely due to the attractive get up of the fruit. Miss Buchan also superintends the shipping.

A NEW APPLE CASE.—The Department of Agriculture at Ottawa is said to have adopted a new case for the export

of Canadian apples. It is a wooden box 10 x 18 x 12 inches, with four sets of card board divisions, so arranged that the whole case will hold twelve dozen apples. The same principle has previously been used by Mr. R. W. Shepherd, of Montreal, in the Cochrane case, which he has used in shipping tender summer apples to Great Britain. We gave cuts of the Cochrane case on p. 115, CANADIAN HORTICULTURIST for 1893. Such a package will insure uniformity of size, but the same object is secured by use of an apple grader, and the ordinary bushel box, 12 x 12 x 24, can then be used with results, in our opinion, quite as good.

PEARS IN LONDON.—So early as July 27th, French pears were coming into the London market, and Williams (our Bartlett) were making 6s. to 7s. per box of 48, and the California Williams 6s. 6d. to 7s. 6d. per half case, and the Souvenier du Congres from 6s. 6d. to 7s. 6d.

THE ALICE GRAPE is a new red variety, originated about ten years ago and now being placed on the market. The quality is excellent, and the season a little in advance of Concord. It is a good shipper and long keeper.

THE CARRIAGE OF OUR APPLES in transit to Great Britain, in the past, has certainly been extremely faulty, and has resulted in thousands of dollars loss to our Province. The agitation for honest packing and careful selecting and grading is a vain effort, unless the steamers are better fitted up so as to carry our apples in ventilated chambers instead of locking them in the oven like holds in which they have been stowed in the past. Mr. Robertson in his evidence on the "Apple Trade," given 16th of May, 1899, says :

"Taking the shipments on Canadian Apples last fall which are Ontario mainly, a few perhaps from Quebec, sold in Liverpool by two different sets of salesmen ; taking a quantity of 14,416 barrels going by 17 different steamships and sent forward, as near as I can make out from the brands, in abont 185 different lots, the brand is sometimes so much like another brand that it may have been the same—but that is a very wide range you see of data from which to make a calculation. There were nearly 15,000 barrels on 17 steamships sent forward in 185 different lots The account sales show this that out of the total quantity there were only 5,928 barrels sold as tights. There were 2,793 slacks, 2,446, slightly wet, 1,997 wet, and 1,252 wet and slack. That is to say rather more than one half of the apples shipped in these lots were sold as slack, slightly wet and wet. The difference in price realized by these apples is very great. The only way to get any fair information on this is to take a lot of apples sent by one ship and pick out the apples of the same class sold as tight, and the others of that variety sold as slacks or wet. Going over the list and taking out the apples of the same variety under these conditions the slacks on the average sold for two shillings and seven pence less than the tights. The slightly wets, for three shillings and eight pence less than the tights, the wets for seven shillings and three pence less than the tights, and the wet and slacks for nine shillings and eleven pence less or nearly ten shillings and of these wet and slacks there were 1,252 barrels."

We are promised by the Department at Ottawa, that a special inspector will be provided at the great shipping ports to see after the proper storage of our apples and shipboard, and we can there-

fore expect a vast improvement in our returns this season.

DISHONEST PACKING is so crying an evil that our association must not let it drop until the evil has been done away. The subject will be again debated at our next meeting, which will be held at Whitby, next December. The Superintendent of the Government Cold Storage building at Calgary, last year, bought a barrel of Canadian apples for himself, and found two rows of good apples at each end of the barrel, and the rest made up of windfalls and other rubbish.

SAUNDERS is the name of a new seedling gooseberry, originated by Dr. Saunders, Ottawa, the best of quite a number of his hybrids. A cut of the gooseberry appears in the report of the Horticulturist for 1898 and it is described as follows: Bush, a vigorous grower and a moderate bearer; fruit, very large, nearly round, sometime slightly oval, brownish-red, smooth; pulp sweet, sprightly and of fine flavor; quality very good. Ripe 22nd of July. Free from mildew. Our readers may secure this report by writing (postage free) to W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa.

THE PROGRAMME of the meeting of the American Pomological Society at Philadelphia, last September, showed a feast of good things. The following are a few of the papers and writers: "Nomenclature of Systematic Pomology," Prof. Waugh, Burlington, Vt.; "Origin and Development of Buds in certain fruit plants," Prof. Lazenby, Columbus, O.; "Relations of Cold to the Flower buds of the Peach," Prof. Whitten, Columbia, Mo.; "The Blue Berry, its Past, Present and Future," Prof. Munson, Maine; "Systematic Plant Breeding," Herbert J. Webber, U. S. Department of Agriculture; "Evils Attendant on Providing Methods of Marketing," J. W. Kerr, Denton, Md.; "Relation of Commercial Fertilizers and Soiling Crops to Fruit Culture," H. E. Vandeman, Parksley, Va; "Improvement of American Grapes," Prof. Beach, Seneca, N.Y.; "American Fruits for America," Prof. E. S. Goff, Madison, Wis.

SAN JOSE SCALE.—We trust the Department of Agriculture, Toronto, may be sustained by fruit growers generally in their efforts to clear the country of this pest, while the infested area is confined to a few square miles which is definitely known to the inspector. Let every tree and bush in that area be destroyed, at whatever cost, rather than allow it to spread.

THOMAS F. RIVERS, the eminent horticulturist, of Sawbridgeworth, Herts, England, died August 17th. We know him in Ontario as the originator of the Early Rivers peach, Czar and Grand Duke plums and many other fruits. Mr. Rivers was the recipient of the Victorian Medal from the Royal Horticultural Society, and is widely known as a contributor to the horticultural press.

THE BING CHERRY is reported in the Northwest Horticulturist as being most successful in the Puget Sound district, Washington. Trees in an orchard at Buena yielded 60 lbs. this season.

LEGAL SMALL FRUIT PACKAGES have been adopted in New York State; fruits are to be sold by the standard of a quart package, containing even full 67 cubic inches; the fruit package therefore being 33½ and the half pint 16¾ cubic inches. Any package of less capacity must be plainly marked

"short," or the owner will be subject to a fine of $5 to $25. This law comes in force January 1st, 1900.

LIQUID AIR may yet take the place of ice as a refrigerator. Mr. Bobrick of Los Angeles, writes in the California Fruit Grower, concerning his visit to Prof. Tripler's laboraty in New York City, as follows:

"I spent almost twenty-five days with Mr. Tripler in his laboratory. What I have seen would take pages to describe. As a refrigerant there is no doubt that liquid air will replace ice just the same as gas and electricity have replaced the old kerosene lamp, and the cable and electric cars have replaced the old horse car. It is only a question of time."

Oranges were put into liquid air in my presence. They were frozen solid, then pulverized like a piece of marble. After thawing somewhat the juice was extracted by squeezing then concentrated by cold produced by liquid air, in the following manner. First Tripler froze the water contained in the juice and removed it as ice. Certain acids contained in the juice froze at a lower temperature and these, too, were removed in the form of ice. Subsequently the pure juice itself froze at a still lower temperature, leaving an acid, which required an even still lower temperature for freezing. The acid was poured off and the frozen syrup, absolutely pure in a concentrated state, was used for making ice cream, etc.

CROP REPORT.—Bulletin 70 of the Bureau of Industries is just to hand, from which we make the following extracts:

Fruit.—There is likely to be a scarcity of fruit this season owing to various causes. The severe winter destroyed a larger proportion of the fruit trees in some seetions, and appears to have injured many which survived Heavy rain during the blossoming season greatly interfered with fertilization, as did frost in some neighborhoods. The tent caterpillar, curculio, codling moth and other injurious insects have also made great havoc among the orchards, except where they have been kept in check by systematic spraying. The apple crop is very light, but as a rule the quality is good, and the fruit fairly free from scab. The winter varieties promise better than the earlier kinds. Plums have done rather better than apples, though greatly subject to attacks of the curculio. The yield in most localities where they are grown is poor, but they will be abundant in some places. The peach crop is practically a failure owing to the general destruction of the trees, which suffered more severely from the winter than did the other varieties. Those which remain have borne fairly well in some neighborhoods, but the total product is small. Pear trees have not been so prolific as usual, and the supply will be light. There was about an average crop of cherries, though some damage from worms and black-knot is specified. Reports concerning the vine yards are highly encouraging, the vines being healthy and well laden.

Potatoes.—There promises to be a good yield of potatoes, though in many quarters rain is badly needed, and in consequence of long-continued drouth the early potatoes have been somewhat small in size. Reports as to the present appearance of the late potatoes are generally favorable, one especially encouraging feature being the decrease in the numbers and destructiveness of the potato bug, caused by the severe frosts of last winter. In some neighborhoods, however, this pest is still as active and injurious as ever, and on low-lying lands a good deal of damage was occasioned by excessive wet in the early part of the season.

JUDGING AT FAIRS. — One of the most difficult duties facing the Board of Fair Managers is the securing competent judges. Of late some of fairs are referring the selection to the various associations for lists of suitable persons. In this connection the following on

grape judging from the Gardener's Chronicle, may be of interest :

"Your correspondent seems to be of the opinion that no man can be a proper judge of anything he has not grown. His proposition is very much like the old saying "He who would breed fat oxen should himself be fat," It far from follows that because a man is a grower, good or indifferent, that he is therefore the best judge of the merits of the thing as presented in competition. One of the great needs for a judge is a capacity to determine merits readily—in fact, to have a thoroughly judicial mind. Then he should have no bias, and none is so likely to have bias for or against certain products, kinds or varieties, as a grower of them. How many of our best judges are there who are other than growers ; or if they have been growers, have not been so for years, yet have judicial capacity to determine merit in the highest degree ? Why, in the case of grapes, growers like to surround the question of judgment with a halo of sacred limitation, but the man in the street, in this case the crowds in the tents, are as keen to distinguish points as are the smartest of growers. If there are judges who entertain such egotistic notions with respect to their own exclusive capacity, let them mix, when a show is thrown open, with the crowd, and listen to the people's comments. It will do much good in helping to tone down complacency. I have, in a wide experience of shows, extending over some forty years, found more mistakes of judgment made by pure growers than by those not so, and having far wider general knowledge and more liberal ideas. After all, it is the general and not the specific judge who brings to the consideration of his labors, as such, the least biased mind.

THE COLUMBIA.—In response to our inquiry about the origin of the Columbia, the originator, Mr. J. T. Thompson, Oneida, N. Y., writes :

"It is not a chance berry but I saved the seed of Cuthberts, near a Gregg black cap, fourteen years ago, as stated, and with the results as shown in the Columbian. I first put the plants on the market in the fall of 1894, and since then have sold 458,000 plants, the larger part of them transplants. I have received orders already for the coming fall and spring, for more than my present stock.

Question Drawer.

Blair's Seedling.

1107. SIR,—I am sending you a peach a boy took off my seedling tree, it is evidently a new one; a stranger among later kinds. Hard yet; will come in about September 20th; seemingly of fine texture and likely to be pretty; small pit and perfectly free. This is one of five; only four left; one of which is very much larger, the other three fully equal, if not better than this, as it was the lowest one on the tree and the boy reached it as easy as Eve. They will be large when ripe. Give us your opinion and oblige,

Yours truly,
JOHN BLAIR.

The sample is very pretty in appearance, and has a well colored cheek, and white flesh. The size is only medium, but large enough for a dessert peach. The specimen was scarcely ripe enough to judge of the quality.

Millionaire Peach.

1108. SIR,—I am sending you a sample of my Millionaire Peach which you will see ripens immediately after the Early Crawford.

E. D. SMITH.
Winona.

We are in receipt of a very beautiful sample of peach to-day from Mr. Smith (Sept. 12th), which well deserves notice providing the tree is hardy and productive, and the fruit should average anything like this specimen. It very much resembles a fine sample of Early Crawford, but the form is rounder, the cavity and suture deeper, and cheek a darker red. The flesh is a beautiful yellow, of tender texture, juicy and highly flavored, quite equal to that of the Early Crawford, while the pit is smaller. Coming in at the season of the late Crawford, it has no competitor that we knew of unless it be the Wonderful, which is also of about the same season. It precedes Elberta, apparently by about a week.

Seedling Grapes.

1109. SIR,—I am sending you by mail a bunch of grapes to see if you can give me the name of them. It is a pure seedling.

JOHN DOUGLAS,
Newcastle.

A seedling grape has no name, it is not a known variety at all, but a new variety produced by growing a plant from seeds. When it is given a name it is no longer called a seedling. The sample was crushed in the mail being packed in a pasteboard box.

Mr. Penny's Bill Regarding Fruit Packages.

1110. SIR,—I should like to know whether Mr. Penny's bill relating to the size of fruit packages is now, or likely to become law?

D. J. STEWART,
Aitken's Ferry, P. E. I.

No, Mr. Penny's bill has not become law; but the amendment to the Weights and Measures Act, of which the text was given on page 307, has become law. This regulates the size of the Canadian apple barrel, making it 27 inches between heads, inside measure; head diameter 17 inches, and middle diameter 19 inches. The barrel must be head lined and sufficiently hooped. Anyone shipping apples in barrels not in accordance with the Act is liable to a fine of 25 cents for each barrel.

It will soon be necessary for the Act to be still further amended, so as to regulate the size of bushel boxes and other cases for fruit.

Shaffer or Columbia.

1111. SIR,—Which is the best raspberry, Shaffer or Columbia? I want a kind that will not sucker.

F. HEBEL.

There is little difference between these two varieties of raspberry. Probably the latter is a little stronger grower of the two; neither are inclined to sucker, but root from their tips the same as Black Caps do. Any nurseryman will supply them.

Mealy Bug.

1112. SIR,—I should be glad to know how to deal with mealy bug on house and greenhouse plants?

I. A. R.,
Chateauguay Basin, P. Q.

In case there are only a few mealy bugs, try brushing the parts affected with alcohol; if bad, try kerosene emulsion, applied with Mitchell's hand sprayer.

Miller Red and Marlboro'.

1113. SIR,—How many days earlier are the Miller Red and Marlboro' raspberries than Cuthbert?

How do these varieties compare with Cuthbert in productiveness and shipping qualities?

D. J. STEWART.

About ten days These are not nearly as productive as Cuthbert, but on account of their earliness they are profitable.

Early Blackberry.

1114. SIR,—Can you name a hardy productive blackberry, earlier than Taylor's Prolific? I have Taylor's Prolific, which is not very productive and is too late.

D. J. STEWART.

The Snyder is an equally hardy variety with the Taylor and more productive, but the berries are usually smaller, and about the same season.

Agawam is hardy, though perhaps not equal in that respect to either of the two last, but it is earlier, and of superior quality.

Early Harvest is of good quality, quite early, but not very productive.

The Spaulding Plum.

1115. SIR,—What do you know about the Spaulding plum?

D. J. S.,
Aitken's Ferry, P. E. I.

This plum belongs to sub-section *Prunus domestica*, which includes the European varieties. The tree is of Pennsylvanian origin, a strong vigorous grower. The fruit is large, round, yellowish green, with delicate white bloom; flesh pale yellow, firm, sweet and good, especially for canning. Succeeds in Canada and New York State, how far north in Canada, we have not yet determined.

Glen's Arborine.

1116. SIR,—Have you tested an article called Glen's Arborine, manufactured in Montreal, a tree paint for all sorts of fruit trees? Can you recommend it?

H. KLIPPERT,
Slayner, Ont.

We have never tried this preparation for any purpose. Who of our readers can reply?

❋ Open Letters. ❋

Annual Plant Distribution.

SIR,—As an example of the value of the annual premium plant distribution, I may say that from the two Conrath Raspberry plants you sent me I will have 525 tip plants and 50 one-year plants this fall, which at $5 per 100 for tips and $8 per 100 for one-year plants amounts to a snug sum.

Yours truly,
D. J. STEWART.

Aikens Ferry, P.E.I.

Japan Plums in Simcoe County.

SIR,—As there is much interest taken in the Japan plums at present in Ontario and many doubts expressed as to their ability to stand our climate in this northern section of the province, allow me to give my experience with the two varieties of these plums. Three years ago I sold a number of Abundance and Burbank trees in this neighborhood, being doubtful about their hardiness. I sold only two to each person, and after selling to six farmers stopped recommending them.

I have watched these trees closely and have to report favorably. Last year they all bore a dozen or so of fine plums and made a wonderful growth of wood.

This spring I was almost afraid to visit them, but did so and found the buds all right, and better still, they not only came through the hardest winter on trees ever experienced here, but have made a splendid growth during the summer and have borne fruit. A gentleman told me a few days ago that his trees gave a nice little crop and that he was delighted with the quality.

I have set out a couple of Wickson, Willard, Abundance and Burbank so as to test them at home.

S. SPEEDWELL.

The Church in its Relations to Horticulture.

SIR,—One of the primary and standard dogmas of the church militant is the fall of man as recorded in the inspired account of the creation and subsequent banishment of man from his primary surroundings The one side only of that dogmas has been dwelt upon by the church from its very earliest days down to the present time, while the other side is scarcely ever touched upon. The condition to which man fell with his weary toiling and his sweating, his physical burdens and his mental suffering have been pictured to him, without stint and without end. The primitive condition from which he fell and the desirability of returning to them is scarcely ever moated from the pulpit or in the Sabbath School room. Surely it is a more attractive and pleasing theme to contemplate—the happy condition from which man fell than the miserable state to which he descended. Why not dwell more upon man's surrounding in his harmonious relations to his Creator than upon his fallen state? In his first condition man was perfect in his moral relation to his God, and his surroundings were in keeping with his perfect moral nature. He dwelt in a paradise. This was his estate, the condition to which he was created. When he fell through transgression he was driven from his surroundings. The bare and naked earth was good enough for him in his degenerate nature and he had to toil for a living. But he had a means provided for him whereby he might renew his moral relations to his maker and again bring himself into harmony with his Creator. This the church has preached to him throughout the ages and endeavored to lead him back to God. But what about his outward surroundings when he does come back?

If God intended man to dwell as a perfect creature amid perfect and beauteous surroundings what does he expect of him when he seeks to be restored to his higher condition in his moral relations? If the fruit of the vine and the fig tree were necessary to his perfect life, and the paradise of flowers and shubbery were his natural surroundings, why are these things not essential to his social, moral and physical happiness in his regenerated nature? In accepting the attonement in order that he may bring himself into moral harmony again with his Creator as he performed more than half his obligation to be performed—that is to surround himself with the fruits and flowers and all the beauties in nature which God had given him—where does the obligation of the church lie?

Has it not been the experience of every horticultural lecturer to hear the excuse given for the small attendance at local society meetings that there is something going on in some of the churches? Has it not been the experience of every horticultural society that they cannot get the people, and especially the young people, to attend their flower shows because of some, perhaps unimportant social function in some of the churches? If there is a circus coming to town, or a horse race, or any other manner of entertainment of suspicious morals or questional influences the church will naturally feel it its duty to preach against it and exhort its people to keep away. This is the duty of the church universally acknowledged even by those who heed not its exhortations. But when the people of a comunity provide an attraction that is really refining, socially and really elevating, and in every sense instructing, by collecting together an aggregation of fruit, and flower and plant and shrub, the best and most beautiful in nature the church cannot lift their voices

against it, or exhort their people to stay away but they can and often do provide—unthinkingly perhaps—some trifling social function to keep them away. Is the church fulfilling its mission to man, to the world, in neglecting the cultivation of the outward adornments of regenerated mankind and teaching the value of beauteous and attractive home surroundings?

If there was a little more time devoted by the church to teaching God through nature and a little less given to dogma, creed and the catechism, it would have built up a brighter, broader and bettter manhood and womanhood in our fair land. Not that I disbelieve in either dogma or creed, but I hold just as firmly to the doctrine that the professed Christian man or woman, who neglects to cultivate the outward surrounding to harmonize with the regenerated moral nature has performed half only of the obligation And I hold it the duty of the church, in the performance of its full mission, to cultivate in all communities the best side of life by its teachings, its influences, and its examples. Let it continue to preach moral and spiritual regeneration through Christ; let it continue to exhort againt the circus and the horse race. but it can well afford to forego some of its trifling social functions to encourage the love of nature among its young people in the cultivation of fruits, flowers and all manner of refining home surroundings.

Where there is a local Horticultural Society every clergyman in the place should be an active member of that society. If he lack taste, natural inclination, or fail to fully appreciate his whole obligation to the Divine ideal, he should be made an honorary member and prevailed upon by constant solicitations to give his encouragement to nature study; and to stimulate in the hearts of his young people especially, a deeper interest in the charm of attractive home life and a greater love for the cultivation of these things which tend to the social and moral elevation of mankind. As an association of horticulturists we need the co-operation of the churches in our work.

T. H. Race, *Mitchell.*

Cardinal Horticultural Society.

Sir,—We had our exhibit on the 15th ult., and I may say it was a success, as it was a very much better display than I had any idea we would be able to get up. We gave the members full swing in getting up their exhibits, *i. e.*, we did not keep them to plants, etc., of their own raising. Next time each exhibitor will have to show their own product. I am afraid our subscription list next year will swell too high for our grant if the people feel about it as they do now. I enclose you a clipping from the local. I may seem a little flowery but I think it expresses the general feelings. The writer of the article is not a member of the society.

E. E. Gilbert, *Sec.*

CULTURE OF HYDRANGEAS.

To have a fine display of large flower clusters upon the Hydrangea, as soon as the old clusters begin to fade cut them away, taking with them a large part of the branch upon which they are produced. New, vigorous sprouts will then push out from the base of the plant, and these can be left untouched till spring. The plants will drop their leaves in the autumn, and should be kept in a cool but frost-proof place through the winter, watering, however, without interruption, as the plants are injured even in a resting state, if allowed to become dust-dry at the roots. As the buds begin to swell toward spring again, cut back to a few eyes, and encourage the growth of new, vigorous sprouts from the base, each one of which will produce a fine large flower-cluster. To promote a vigorous growth use manure water while the plants are developing, but when the buds andflowers appear avoid it if you wish flowers of a clear, bright color. Iron filings may be used then to give a bluish color, and bone-dust to brighten the pink color. A six-inch pot will answer for the same plant for several years, if treated in this way.

Hydrangea paniculata when grown out-doors should be vigorously pruned in the spring. Some persons recommend cutting the plant every year almost to the root—apparently cutting the entire top away. For a grand display of bloom this vigorous pruning is worth adopting. The panicles are not so numerous, but are far larger and show finer flowers. For autumn-blooming this is one of our best shrubs. It is alike useful for either garden or cemetery. It likes a rich, moist loam and sunny exposure.—Park's Mag.

PLUMS—A COMPARISON OF VARIETIES.

THE following list of plums contains some of the most desirable for the State. Those varieties which are denominated as American are natives of this country, and, as a rule, are hardier than either European or Japanese varieties. The American sorts are subdivided into several classes, but no classification is attempted here. Because of reliability most of them may be safely planted, but they are less salable than the European varieties, hence as an orchard venture, the planting of American sorts could be easily overdone.

Successful orchard culture of plums must, in the future, depend very largely upon the selection of the best varieties for market. As a rule these must be those bearing the largest and most showy fruit, and must be so selected as to cover as long a period of ripening as possible. All of those named, and many more, have been grown at the Ohio Experiment Station, but the conclusions drawn are not merely from the Station tests but from observations elsewhere as well.

German Prune—A reliable variety, especially valuable for market. Fruit medium to large; dark purple; of good quality, season medium to late. Rather a weak grower and succeeds better if top worked on some free growing sort.

Pond's Seedling—Fruit large to very large, of medium quality; bright red; tree vigorous and prolific, but fruit inclined to rot. Not regarded as a very profitable market sort, and not high enough in quality for dessert. Season late.

Grand Duke—A very fine, large, late variety; dark blue in color and very attractive in appearance. A slow grower and ought to be grafted on some other vigorous hardy variety.

Lombard—An old standby. Reliable and valuable, although considerably inclined to rot. Medium size; coppery red; fair quality. Inclined to overbear and needs close pruning.

Bradshaw—Tree a fine grower and prolific, but rather long in coming into bearing. Fruit large, purple and of good quality. The earliest of the large sorts and one of the best for all purposes.

Wolf—One of the best of American varieties, but inclined to overbear. The trees begin bearing early and need close pruning to thin the fruit.

Spaulding—A yellowish green plum of excellent quality. Choice for home use but may not be sufficiently prolific for market. The claim of the introducer that it is curculio proof is unfounded.

Yellow Egg A fine large yellow plum, suitable for canning, but not of first rate quality. Season medium to late. Inclined to rot on the tree.

Coe's Golden Drop—A large, late ripening, yellow variety. Tree a slow grower and should be top worked on some free growing sort.

Tatge—Said to be very hardy but can hardly be distinguished from the Lombard.

Weaver—One of the best of the midseason American sorts. Rather dull in color but excellent for culinary purposes.

American Eagle—One of the best of the American sorts because of large size and good quality.

Imperial Gage—A greenish yellow plum of the best quality. Especially desirable for the home garden.

Richland—A reliable midsummer variety, but too small for market purposes.

Missouri Green Gage—A greenish yellow plum, similar to Green Gage, but a little larger. Of the very choicest quality. Season medium to late.

Reine Claude de Bavay—Greenish yellow; late in ripening, of the best quality and very prolific. One of the best either for home use or market.

Arch Duke—A large dark purple, late ripening sort and very promising, but not fully tested.

Reed—A wonderfully prolific American variety. Fruit of medium size, bright scarlet; very beautiful and with very much of the Damson flavor when cooked. Very ornamental in foliage, flower and fruit

Golden Beauty—A very pretty yellow fruited American sort. Suitable for canning.

Prairie Flower—A medium to large American sort of good quality with but little astringency. Does not drop as badly as some varieties of this class and appears to be very promising.

Hawkeye—One of the largest and best of the American varieties, but with rather too much astringency next to skin and stone.

Forest Rose Improved—A little later and larger than Forest Rose and more attractive in color as well.

Chabot—One of the best of the Japanese. varieties. Medium to large yellow, nearly covered with scarlet, and of good quality. Later, hardier and less inclined to rot then Burbank.

Bailey—Appears to be much like Chabot, but as we have it it seems to be hardier.

Gold—A prolific and early bearer; fruit a clear yellow, partly overspread with red; medium to large but not of first rate quality.

Lincoln—Fruit large to very large, coppery red and of good quality. Valuable for home use or market, but slow in growth and should be worked on some other variety.

Red June—One of the hardiest and best of the Japanese sorts. Especially valuable because of earliness.

Abundance—Tree upright in growth and prolific; fruit medium to large and of excellent quality. Desirable.

Burbank—Tree a vigorous grower; very prolific and begins bearing when very young. Fruit medium to large, showy and of good quality, but much inclined to rot.

Gueii—A reliable dark purple variety. Although much inclined to rot it should be included in the list of profitable orchard sorts.

Moore's Arctic—Rather too small for market but the fact that it is hardier than most other varieties of its class makes it valuable.

Wild Goose—On account of earliness, great prolificacy and extreme hardiness this must be ranked as a valuable variety.—Ohio Agricultural Experimental Station.

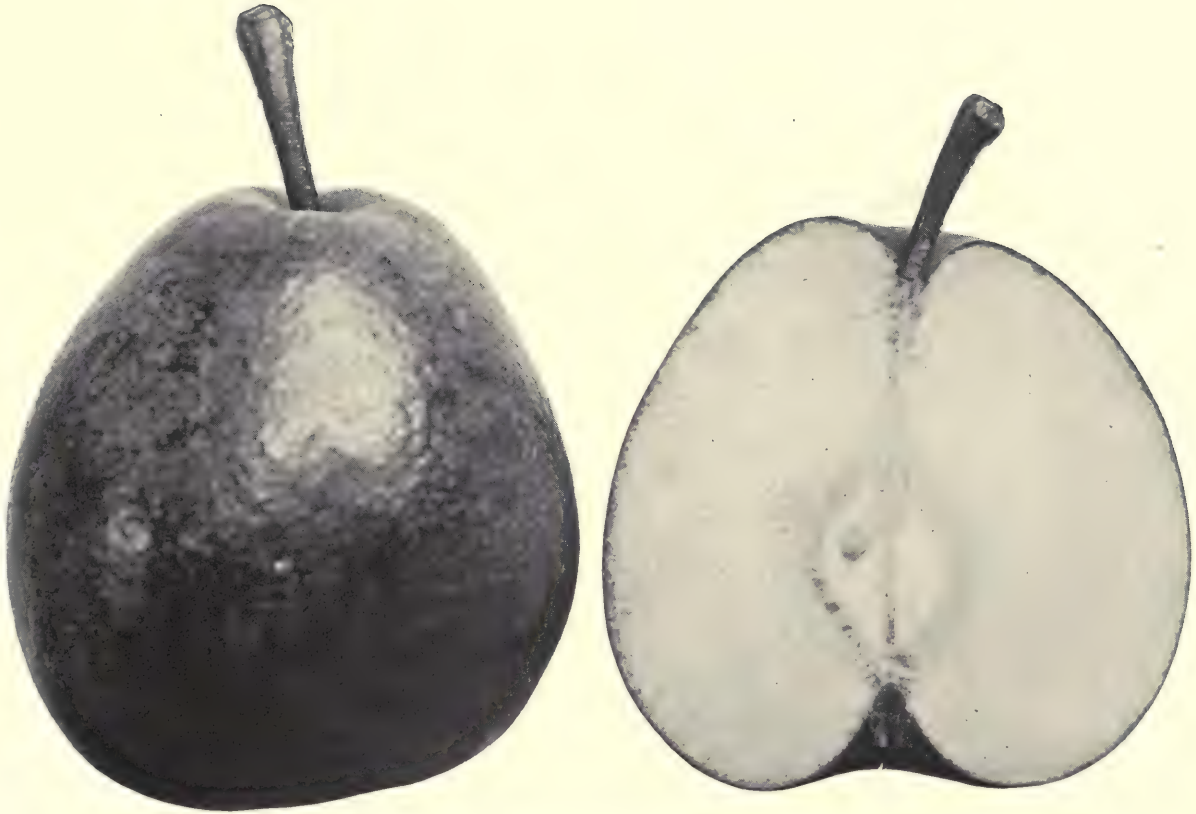
POTS AND POTTING.

All new pots should be well soaked in water before using, and all old pots well washed and soaked also. In potting plants from seed flats, or plants that have been grown in boxes, use as small pots as will comfortably hold the roots. In re-potting plants, use only one size larger pot than the one the plant is removed from. In re-potting, instead of digging the ball of soil out of the pot with a knife or stick, simply place one hand over the top of the pot, turn the pot upside down, give the edge of the pot a sharp rap or two on any hard substance, and the ball of soil and roots will come out whole; having drainage in your larger pot, place a little soil over it, place the ball on that and fill in around it, pressing the soil down, as you place it in, with a thin stick so as to leave no air spaces around the old ball. Fill within an inch of the top, water once thoroughly, afterward as needed.— H. E. Gould, Sussex, N. B.

DRAINAGE FOR HOUSE PLANTS

This is of the utmost importance, for no plant, except true aquatics, will thrive unless free egress is provided for the surplus water given. The best materials are broken pots, charcoal and coke; any other material that is sufficiently firm and porous will answer. From one half to one inch of this should be placed over the drainage hole in all pots above three inches in size that are used. If saucers are used under pots, place a handful of gravel or coarse material in them under the pots. Make sure of good drainage, and each time of watering all plants (other than aquatics) be sure to empty all surplus water out of the saucers that may drain into them; *water remaining in saucers under plants is a fruitful source of disease and death.* Plants do not usually need re-potting until the soil is crowded with roots. All boxes in which plants are grown should also be well provide with drainage.— H. E. Gould, Sussex, N.B.

THE WINTER MEETING of the Ontario Fruit Growers' Association will be held in Whitby during the first or second week in December. Suggestions for topics and speakers will be gladly received by the Secretary.



SHELDON PEAR.

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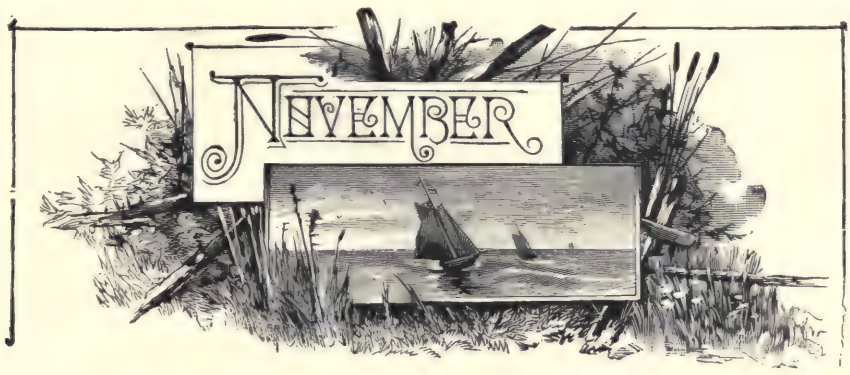

THE SHELDON PEAR.

THIS pear is an American seedling. It was propagated accidentally, on the farm of Norman Sheldon, in the town of Huron, Wayne County, N. Y., and has borne several synonyms, as, for instance, Huron, and Wayne, from the places above mentioned; but, properly enough, the name Sheldon prevailed, as being the name of the originator.

With regard to its adaptability to the climate of Ontario, our reports show that it is perfectly hardy in the Counties of Lincoln, Brant, Essex, Kent, and even Huron, along the borders of the lake, but in the County of York it is not considered quite hardy. The conclusion, therefore, to be drawn is that this pear is not suitable for planting north of Toronto, except under some particularly favorable circumstances.

The pear ripens in October and November; but it must be gathered in good time, or a large portion of the crop will need to be gathered from the ground; and it must be used just at the hour it becomes mellow, or it will be found too far gone for use. In this respect it bears a worse character than even the Bartlett. We esteem its quality very highly; and a writer in the Country Gentleman says that he thinks that, when well grown and properly ripened, it excels all other pears in deliciousness of quality. It is as melting as ice cream, and its flavor is superb. The pear, however, is variable in quality and sometimes, when badly grown and poorly ripened, might be called poor. As a market pear the Sheldon cannot be ranked high, first, because of its russety appearance, which, however, yellows up finely when ready for the table, and, second, because the tree is not sufficiently productive.

A tree at Maplehurst, about thirty years old, bears some years a few straggling specimens, and other years possibly a bushel or so; certainly far below the average yield of many other varieties, as, for instance, the Buffum, Tyson, Bartlett and Howell. But, whether

the crop of Sheldons be large or small, we always save it for home use; for none of its compeers, the Duchess, the Anjou, nor the Lawrence, though all are delicious, are as desirable. No member of the family would select one of the latter for eating when he can have the Sheldon.

The Committee on Pears, appointed by the Ontario Fruit Growers' Association, gave the Sheldon ten marks, the maximum number to indicate its value for dessert, and seven for market; but they have ranked the Anjou equally high, and, in our opinion, this might justly be amended to make the latter variety at least one point below the Sheldon.

The following description of this pear is given in "Fruits of Ontario," Tree vigorous, erect, not very productive, late coming into bearing. Fruit above medium in size, roundish, obtuse, obovate; skin yellowish green, covered with thin light russet, brownish crimson in sun, russet dots; stalk short, stout in a narrow cavity; calyx nearly open, in a broad basin. Flesh creamy white, buttery, juicy, sweet and aromatic. Season, October, One of the most delicious of dessert pears, if eaten just at the proper time. Worthy of a place in every home garden, but not productive enough to be planted for market.

Two or three reports concerning this pear have been sent in, which we here insert:

W. Boulter, of Picton, Prince Edward Co., writes: "My experience with this variety has been poor. I planted ten years ago, seventy-five of them, and lost every one of them, perhaps due to the winters' cold. I gave them the same cultivation as the Clapp's Favorite and the Flemish Beauty, some three hundred of which I had by the side of them, and lost none. I think it will not endure the climate of this county."

Thos. Beall, of Lindsay, says: "I have not grown this pear, but I had two trees planted, which died before the bearing age. I do not know of its being grown in this locality."

The late Warren Holton, of Hamilton, said: "I have fruited the Sheldon for several years and think very highly of it. It is with me a moderate bearer when young, but improves with age. I consider it the best quality and it always commands the highest price and a ready sale in the local markets."

T. T. Lyon, of South Haven, Mich., once wrote: "The Sheldon pear is considerably grown for market in Michigan. It is a vigorous, healthy variety; a little variable in quality and somewhat uncertain in bearing. Aside from Bosc and Anjou, this and Howell may be said to range next to the Bartlett in the estimation of the mass of commercial planters of this fruit."

PROFESSOR S. T. Maynard says that the old varieties of apples are running out and cites the Baldwin as an example. The varieties which he calls new, and which he says are coming more into vogue, are Sutton, Palmer, McIntosh, Wealthy and Gano. None of these, except possibly the last, are in reality new. All are good, says the Country Gentleman. Palmer, is little known, except locally. We suppose that this is the same as Palmer Greening, or more properly, Washington Royal.

THE EXPORT OF PEACHES.

IT seems well proven that we cannot export the Early Crawford peach with any certainty of success. One lot that was safely landed sold for $3.75 per bushel and clearly showed that our peaches would bring a long price in England, if only they could be landed in good condition, for the quality is most excellent and the color is exquisite. But for the most part this peach has arrived in a soft and worthless condition, and brought loss upon the shippers. The package first used was very clumsy and very expensive, but of course if it were successful we could stand the cost. It was a box holding a little more than a bushel, having 8 trays, each of which contained one layer of fruit, and had to have a separate cover nailed on it. The peaches were each wrapped in tissue paper and tightly packed. The labor of packing in this way was most wearisome. This season the same case is being used, but still greater care is being taken to ensure safe carriage. Not only is each peach being wrapped with cotton batting, but it is laid on a cushion of the same, and a pad of this material separates each row of fruit, as shown in our illustration.

FIG. 1677.—TRAY FOR PEACHES.

(Fig. 1677). Then a cushion covers the whole, so that there is no possibility of bruising, and if carried at a temperature of 36° F., we see no possibility of failure even with the Early Crawford.

Two trays of them so packed were left over at our cold storage building at Grimsby, and three weeks later opened at the Town Hall, at our Horticultural Society Exhibition, and although of this tender variety, they were in perfect condition, with no perceptible change since packing.

The surest success in exporting peaches will come about by the use of some better shipper than the Early Crawford, and we believe that in the Elberta we have found such a peach. It is about as large as the Early Crawford, longer and flatter lengthwise, not quite equal in

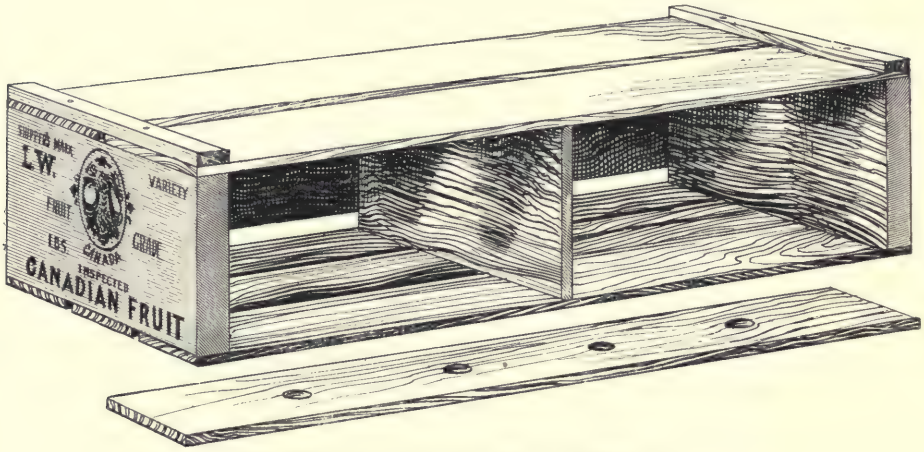

FIG. 1678.—CASE FOR PEACHES AND PEARS.

color, but a fine yellow peach with a fairly well colored cheek, not very juicy, but rather firm in flesh, and a free stone. For such a peach as this, our pear case (Fig. 1678) would answer an excellent purpose and be far less expensive. It is 1 ft. x 2 ft. x 4½ or 5 inches, and holds two layers of fruit, wrapped in tissue paper, with packing *ad libitum.* A small shipment of this peach has gone forward and we hope to hear encouraging results.

UNFERMENTED GRAPE JUICE.

THE manufacture of unfermented grape juice assumes considerable proportions in many localities, but difficulty is often experienced in preparing a product which will "keep," *i.e.*, does not ferment. Fermentation is due to the presence of micro-organisms in the juice or cider, and may be prevented by sterilizing the latter as well as the vessels used in connection with the bottling of the product. Heating is the simplest, safest and most effective means of sterilizing, but great care is necessary in order to so control the temperature as to secure thorough sterilization without injuring the flavor of the product.

A report of the Canada experimental farms gives an account of a series of experiments on the juice. The conclusion, which probably applies to sweet cider as well as to grape juice, was that "the natural flavor of grape juice may be preserved intact by raising the temperature of the juice gradually to 170 degrees F., keeping it at this point for ten minutes and then quickly bottling it, taking care to use absolutely air-tight and thoroughly sterilized vessels. These vessels should be taken from a tank or kettle of boiling water, immediately filled, and corked or covered with the least possible delay."

AMONG OUR NEIGHBORS.

BOTH Canada and the United States have reached a period in their history when the art of the landscape gardener is much in demand. Thirty years ago our foremost cities had but the smallest excuse for parks or artistic cemeteries. Hamilton had a little enclosure on King Street called the "Gore," still an interesting feature of the city; Toronto had her Queen's Park, reserved in the interests of her University seat, and London and Kingston similar small plots, but anything like a system of public parks was hardly thought of, much less planned out. In New York State, the commercial metropolis had her elegant Central Park, but Buffalo, with her large population had nothing worthy of notice. During these years a change has come over all these cities and popular taste is demanding that our city parks be thoroughly up to date.

Passing through Buffalo recently on the way to Nova Scotia we were most cordially received by Mr. J. C. Graves, superintendent of the parks of that city, who gave us a carriage ride of two hours through them, explaining numerous points of interest by the way. The parks of Buffalo have been the growth of the last thirty years until now they embrace about 1100 acres, and cost the city from $150,000 to $250,000 per annum. The plans for improvements were made by that able landscape architect, Mr. J. C. Olmstead, of Boston, who planned the World's Fair Grounds at Chicago, and they really include about forty smaller parks connected by artistic boulevards. Every class of citizen is considered—the boys with a wad-

FIG. 1679.—ARNOLD ARBORETUM—West Entrance.

FIG. 1680.—AGASSIZ BRIDGE—BACK BAY FENS.

ing pond in which several hundred boys may at times be seen, sporting people with a golf field, the horsemen with a fine speedway of half a mile, and all lovers of the beautiful in landscape, with beautiful lawns and trees and water in most excellent combinations,

At Boston, Mr. W. H. Manning, landscape architect and secretary of the Park and Outdoor Association, was extremely courteous and obliging to us. Though over-burdened with office work, and the superintendance of park designs in many different States, he yet found time to engage a carriage and accompany us through the magnificent park system of Boston, which now covers an extent of 12,000 acres, of which the Metropolitan Park embraces about two-thirds, and the Bay Fens, the Arnold Arboretum, Franklin Park and others the balance. Probably no city in America has the same extent of Park as this old and refined City of Boston. It seemed like classic ground to pass the homes of such noted men as Prof C. S. Sargent, so well known as editor of The Garden ; Charles Downing, author of American Landscape Gardening and Francis Parkman, the historian.

The Arnold Arboretum is beautiful and the group of hickories, oaks, conifers, etc., show a good beginning of an important collection but it seems to have never realized the ideal of the founder, for it has no labels and is apparently incomplete in its collection of species.

In order to give our readers an idea of some features of these parks we give views of the Arnold Arboretum, Agassiz Bridge and in Back Bay Fens, and some ribbon bedding in the Public Gardens

Mr. W. H. Manning has most kindly

FIG 1681.—RIBBON BED IN PUBLIC GARDENS, BOSTON.

consented to answer questions on "Landscape Gardening," in our journal, if such are forwarded to him, and we shall be glad to take advantage of his kind offer.

At the old Quincy Market we saw quinces in barrels and crates, apples in barrels in endless quantity, especially Colverts, Vandeveres, Greenings and Baldwins. These were of course mostly No. 2, and were bringing from $1.25 to $2.25, about the same as this stock brings in Montreal. Canadian Snow apples were much wanted. Concord grapes were almost all in five pound baskets at 13 cents each. California grapes were offered in four pound veneer baskets—four of these crated together, the Tokay being the prominent variety.

In another article we give some account of the gardens and orchards of Nova Scotia.

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140 VARIETIES OF PEARS were exhibited at the Syracuse State Fair by Messrs. Ellwanger & Barry, of Rochester; and 235 plates of plums by Mr. S. D. Willard, of Geneva, N.Y., the latter included some samples of the Wickson, described as large, brilliant red, very juicy, sweet and pleasant flavor.

CENTRAL EXPERIMENTAL FARM NOTES—II.

FIG. 1682.—STRAWBERRY PLANTATION, CENTRAL EXPERIMENTAL FARM.

THE first frost to seriously check vegetation occurred at Ottawa on the 23rd of September, when the tomatoes, cucumbers, melons, squash and other tender things were killed. This frost was followed on the 2nd of October by one much more severe. The thermometer only showed four and a half degrees of frost, but the ground was frozen about three fourths of an inch deep; the leaves on the grape vines were killed, and the fruit, of which there was a large quantity unpicked, was much injured. While it was thought that not more than twenty-five varieties of grapes would ripen thoroughly, more than 50 sorts have matured. The Moyer grape, of which mention is made in the October number of THE CANADIAN HORTICULTURIST, is certainly a very desirable variety to plant for home use in the colder parts of the country. This year, it ripened on the 23rd of September, while Delaware, one of its parents, was not ripe until the 5th of October, and then unevenly. Of white grapes, the first to ripen was Golden Drop, on the 17th of September. This is a small sweet grape, lacking in character, but a sure ripener here. Moore's Diamond, a grape of high quality, is, however, probably the best white variety to plant. It usually ripens early, but owing to the unfavorable season this year it did not mature until the 5th of October. It was interesting to note the order of ripening of the dif-

ferent varieties, as some kinds which ripened early last year were among the latest to ripen this year.

The Walter apple fruited this season for the first time on trees planted in 1895. The apples are very large and of fine appearance ; quality about medium ; season, appears to be October and November. If it continues to thrive, this variety may be a valuable aquisition to our list of hardy fruits. Two trees of the Milwaukee apple, planted in 1895, bore heavily this season. The fruit is large and is striped somewhat like Duchess, of which it is a seedling. Its season is said to be from December to March. The trees seem quite hardy. also, is a promising variety and will prove valuable if it is a good keeper.

In the year 1890 an orchard was planted containing about 3000 trees raised from seeds imported from Riga, Russia. These trees were reduced by blight, winter-killing, and other causes, to about 1000 trees before they began to fruit. Up to the present time, about 150 trees have borne. The greater part of these have produced fruit ranging from medium to large in size. They are nearly all summer varieties and none of them are especially promising. Although there are many of them which appear just as good as some of the named varieties of Russian apples.

A building for curing tobacco in has been erected this autumn from plans prepared by one of the most practical tobacco growers in Canada. The system of ventilation is well planned, and good results should be obtained. One and a half acres of tobacco, consisting of three varieties, namely, White Burley, Little Oronoko, and Havana Seed Leaf, were grown, and the plants are now curing in this building. Besides the three varieties mentioned, there were 45 varieties grown for comparison.

The potato crop was good this year in the Experimental Plots. Most of the varieties which usually yield best will again be near the head of the list this year. Among the most productive and best in quality are : American Wonder, Everett, Carman No. I, and Empire State.

The leaves of the trees and shrubs are, with few exceptions, not highly colored this autumn ; the weather being cloudy and wet has not offered favorable conditions. Three of the exceptions are : the Ginnalian maple *(Acer tartaricum Ginnala)*, Thunberg's Barberry *(Berberis Thunbergi)* and the Fragrant sumach *(Rhus aromatica)*, The first of these is a little maple from Amurland whose deeply cut, pretty leaves, and ornamental fruit are very attractive in spring and early summer, while in autumn there is no maple yet tested here which surpasses it in the brilliant coloring of its leaves ; the season appearing to make little difference. It is perfectly hardy at Ottawa, but apparently does not live to be more than 10 or 12 years old, by which time it reaches a height of about 13 feet. Thunberg's barberry is a compact little shrub which does not usually grow more than from three to four feet high, but it is a perfect blaze of color in autumn. Its scarlet fruit also makes it quite ornamental in winter. It is a very desirable shrub. The Fragrant sumach is a native shrub of spreading habit. Not specially ornamental in early summer, but it should have a place where there is much shrubbery, on account of its high coloring in autumn.

The perennial border, which is half a mile long, contains about 1200 species and varieties of herbaceous plants, and is very attractive to visitors from early spring until late in autumn. The severe frost of the 2nd of October this year

FIG. 1683.—TOBACCO PLANTATION WITH ORCHARD IN BACKGROUND, CENTRAL EXPERIMENTAL FARM.

destroyed all the flowers except the very hardiest. Among these were the Michaelmas daisies or Wild asters, and *Boltonia asteroides*. Some of the improved asters are beautiful flowers and, on account of their lateness in blooming, are very desirable.

Boltonia asteroids, a tall aster-like plant, is a profuse bloomer and very noticeable during the month of October, when there are so few flowers.

W. T. MACOUN,
Horticulturist, Cent. Exp. Farm.

NOVEMBER IN THE ORCHARD,

THE rush of the fruit harvest is now over, and the fruit grower can have a few weeks to clear up many duties necessarily postponed.

Where cover crops have been sown in the orchard for winter protection, of course fall plowing will not be in order, but where root killing is not a danger, nothing will so improve the texture of the soil as turning it up to the action of the winter's frost. This treatment will also be a better protection than leaving the uncovered ground unplowed, for the fine earth at the surface will itself be a sort of mulch. Last winter immense numbers of peach trees were either root killed or so weakened at the root by the continued cold of February, that they have been slowly dying ever since, and in most such cases we have noticed the ground was naked or unplowed; while orchards which were protected by crim-

son clover, grass, chickweed or finely cultivated surface soil, escaped with little injury.

The fact is our orchards must have better cultivation ; owners usually have too little time for this work and, if we discourage fall plowing, the evil is the greater.

The soil should not be left rough plowed, as in the open, but about trees it should be harrowed to fine the soil for the protection of the roots. Care must also be taken to plow up to the trees and not from them, for nothing is more injurious than water standing about the roots.

Our old enemy, the mouse, must be carefully guarded against. A simple method is to heap fine earth against the trunk, or a bit of veneer may be tied about the tree. Of all things, rubbish about the trunk must not be allowed ; it is an invitation to a mouse to build his house in it.

Pruning is also in order, a job usually left until spring, but too often neglected entirely in that brief season. The pear and the plum tree need thinning out, the limbs which are inclined to cross, and a shortening in of those inclined to sprawl. The dwarf pears should be trained in pyramidal style, and severely shortened in to bring them into shape. The lower limbs should be encouraged near the ground, the leader shortened and intermediate branches cut to a line from their extremities. Spur pruning of the bearing shoots, much as we practice in grape pruning, will also be helpful in securing good sized fruit.

The vineyard should also be pruned in November and December, while the sap is perfectly dormant, if possible ; leaving the spurs a little longer than one would do in spring pruning. It is a cold job in March, and if left till April, it is sometimes neglected.

The apple on rich land grows rapidly, and, if neglected, the head soon becomes a thicket of brush wood. Annual pruning is the only proper treatment, and in the end the most economical.

Dead trees should be dug out of the orchard with the roots ; it is untidy to cut them off and leave the stump in the way of the plow. All rubbish should be gathered and burned, for nothing more encourages mice. Thrift is economy, and it actually pays in hard cash to be tidy.

The house yard should be an index to the character of the whole farm, and not only be kept free of weeds, but laid out with taste and artfully planted, that it may bring the owner what is of more worth than money, the possession of a *home*, with the sweetest possible associations, and a rich inheritance to those who follow after him.

Plans for planting should now be made, and lists of fruit and ornamental stock needed should be made out and ordered in advance, in order that they may be on hand in spring when planting season comes.

HOW TO KEEP GRAPES.

A paper by W. Mead Pattison, of Clarenceville, Que., before the Quebec Hort. Soc.

IN seasons of abundance, like the present, the question is often asked: "How can I keep grapes?" Much has been written on this subject, and different methods to attain this object have been recommended and adopted during the past few years, with varying success. When grapes are intended for keeping, care should be taken that all cracked or bruised berries are removed, with long pointed scissors, made for the purpose, for if such are left they will mould, rot and destroy others. One obstacle to guard against is the weight of the fruit, as stored in baskets or boxes. The grapes continually settle, exclude the air, and finally mould. The question is how can we obviate this in packing? Two methods have been found successful in the grape-growing region of Central New York. Ten-pound baskets are used, a layer of dry oats or sawdust is placed in the bottom, and then a layer of grapes, then a layer of oats or sawdust, and so on till the basket is full. Bran should never be used in packing fruit, as it heats. The objection to this method is that the grapes cannot be readily looked over during the winter, and mouldy or rotten ones removed. My own experience has been, that for all practical purposes, the ordinary cotton wadding in sheets is the most satisfactory packing, cut into pieces, to cover the layers in shallow grape or peach baskets with wire handles, which allow of their either being piled on tables or hung on nails to the beams in the fruit cellar. Line the sides and bottom of the basket, place a layer of grapes, then a layer of wadding, and so on four or five layers at most. With proper precaution and attention the best keepers will remain in good condition till May or June, although somewhat wilted at the last.

Unripe, poor and watery grapes, will not keep under any condition. In gathering grapes a dry day is preferable, and great care in handling is necessary. A bruised grape, like a bruised apple, is sure in time to decay, and affect others in proximity. Hence, in a basket of grapes as we buy them in market from the south and west, from long carriage and solid packing, many bunches are more or less bruised and require all injured berries cut out before packing. Grapes should not be packed away till the excess of moisture in the stem has dried off. This can be accomplished in fine weather in a few hours by placing them in single layers in baskets or on tables.

The most important requirement after packing is to keep the grapes in a continued low, dry and even temperature, in very cold weather, as near freezing point as consistent with safety. This requires some watchfulness, as in the fall we often have some very warm days, requiring their removal to the fruit cellar for a time. It is preferable to store the baskets on a verandah or in an airy out-building till hard frost, even if they have to be covered with a blanket at night. When permanently removed to the fruit cellar it should be kept as near the freezing point as possible during the entire winter to attain that object and ensure dryness. Raise the windows during the day rather than the night. As to varieties to select for keeping, the rather thick skinned ones are the best, like Salem, and others of Roger's hybrids.

The Vergennes, originated in Vermont, is the best keeper of all, though it rarely finds its way out of the home garden, as it is essentially a keeping grape, whereas Rogers' hybrids, Concord and Delaware are plentiful on our markets. The Duchess, a rather small white grape, is a good keeper, but efforts to keep extra early varieties like Champion and Hartford, do not pay for the trouble. In a trial of some forty selected varieties in the winter of 1883-1884, I found Concord, Worden and Dela ware to keep in fair condition till December. Duchess, several of Rogers' hybrids, and a black wine and table grape given the name of Pattison at the Experimental Farm at Ottawa, till January; and Vergennes, Salem, Wilder, Herbert, Rogers' No. 30, El Dorado, Gaertner, Mary and Owaso through February. These grapes were packed with paper between the layers, but since the adoption of wadding, I have kept most of these till June, at which season it is not possible to keep the cellar in proper temperature and dryness. If a system of cold storage could be adopted for our fruit cellars, better results could be attained. In warm weather close cellars induce dampness and mould in our fruit.

USE OF GRAPES AS FOOD.

The highest medical authorities claim that the grape is a potent remedy for the prevailing derangements, having their origin through the alimentary system. On the continent of Europe, in the world-famed "grape cures" for dyspepsia and its sequel, consumption, the diet during the season consists almost exclusively of ripe grapes. The patients stroll about the vineyards and make their meals as appetite dictates. During the balance of the year the diet is composed chiefly of fruit with coarse ground cereals. With the permission of any medical man, who may be present, I will venture to give, without charge, a prescription for indigestion and want of appetite, namely, make breakfast or supper entirely of grapes or other fruit—nothing else, neither coffee nor tea. I have endeavored to show how we may enjoy the grape nearly the entire year, and contend that if the apple is recognized as the "king of fruit," the grape, the autocrat of the garden, is entitled to be called the queen.

PRAISE OF THE APPLE.

The old Scandinavians believed that the gods subsisted wholly upon apples, and that it was through the peculiar properties communicated by this queen of fruits that they acquired the wisdom which they imparted to men.

The acids of apples are exceedingly useful through their stimulating influence upon the kidneys, whereby poisons are removed from the body, and the blood and tissues purified. The acids of apples are all highly useful as a means of disinfecting the stomach, since the ordinary germs that grow in the stomach, producing biliousness, headache and other troubles, will not grow in fruit juice or fruit pulp.—Editorial in Good Health.

FRUIT EXHIBIT AT HALIFAX.

FIG. 1684.—APPLES AT N.S. PROVINCIAL FAIR

THE exhibit of fruit at the Nova Scotia Provincial Exhibition, held in Halifax, September 23rd to 30th, while not quite so large as that of last year, impressed one as being better in quality and as illustrating better the capabilities of the province along commercial lines. There was a splendid exhibit of the leading sorts of market apples, there being nineteen entries of Gravensteins, which were magnificent, and the other most popular sorts being equally well represented.

It is perhaps to be regretted that more prominence was not given to barrels of apples packed for export, since this subject is of so much importance to growers, and anything which can be done to encourage better methods in this respect, ought to be done.

At present the prize offered is only $4, for the best barrel of the different sorts, the fruit to become the property of the Commission, and this is scarcely the cash value of some of the better varieties, when sorted as carefully as these prize barrels have to be. If growers could only be brought to realize how much more valuable a prize they are competing for when they pack a barrel of apples for export, we might look for an improvement in the general practice of packing.

The value of modern methods of culture and spraying was well illustrated by some Burbank plums exhibited by Mr. Ralph S. Eaton, of Kentville. They were almost a third larger than any others of this variety exhibited; and Prof. John Craig, who acted as judge of the fruit, pronounced them the finest Burbanks he had ever seen.

Mr. Eaton practises thinning his fruit, which is doubtless in part accountable for the superb character of these plums; but cultivation, spraying and fertilizing are also largely responsible. If Nova Scotia can grow such plums as these, and if cold storage can be developed sufficiently to land them in perfect condition in the London market, there is no reason why this branch of fruit growing should not become of great importance commercially.

Peaches again formed an interesting part of the exhibit, and enough were shown to prove that Nova Scotia can grow them for the home market, though they may never be of commercial value. Some really creditable plates were shown of such sorts as Alexander, Crawford's Early and Hill's Chili.

A very valuable feature of the exhibition, to those who were fortunate enough to hear it, was a short address given in the Horticultural building by our old friend, Prof. John Craig. After complimenting the fruit growers upon the splendid exhibit of fruit, on the merits of which he had just had the pleasure of passing judgment, Prof. Craig called the attention of those present to some of the lessons to be learned from the exhibit. He wished first to impress growers with the importance of raising

FIG. 1685.—PROVINCIAL FRUIT EXHIBIT AT HALIFAX.

only those varieties of fruits of the different classes which reach especial excellence in Nova Scotia.

With the present transportation facilities, growers the world over come into competition with one another in the world's markets; and it is useless for growers in one district to grow those sorts which can be better grown in some other district. For example, the Gravenstein and Ribston Pippin reach a higher state of perfection in Nova Scotia than anywhere else in America, while the Ben Davis can be grown much better in the Ozark region of Missouri and Arkansas. Nova Scotia growers should therefore confine themselves largely to the former sorts and avoid those varieties which reach only mediocre quality here.

Again, it is a well recognized fact that where a plant of any kind reaches its highest perfection, there it will be most likely to vary from the type. It therefore follows that varieties, or even sorts of the varieties first named, are very likely to be found in Nova Scotia, and Prof. Craig urged that growers should pay more attention to this matter, noting those trees, or even branches, which give the best fruit and the most of it, and propagating from them.

Continuing, he said that in his opinion the fact that it is possible to ripen Alexander and Early Rivers peaches in Nova Scotia, is a strong indication that chestnuts might also be grown there. There is no question as to their hardiness, and by selecting the early sorts of Spanish and Japanese chestnuts, there should be no difficulty in ripening the fruit,

Nova Scotia ought also to grow her own grapes. With the proper varieties, grown on the warmest soil, in a sheltered location, and trained upon a trellis, there should be no question as to supplying the home demand. But we must abandon such old and late sorts as Catawba and Isabella, and select in their stead, Lady, Moyer, Winchell and Moore's Early. These are not commercial sorts, but are the ones most likely to succeed in this climate.

F. C. SEARS.

Mr. Chas. E. Brown, of Yarmouth, writes as follows regarding their exhibition.

Among the miscellaneous sorts was one dish of Wolf River, shown by J. Adolphus Hatfield, of Tusket, the most brilliantly colored specimen on the table, very large in size, and perfect in shape and cleanliness, meriting a special prize. Clearly Wolf River should be propagated wherever it does well. It is thought to be a seedling of the Alexander, but it is of better quality, and less liable to black spots.

It has become quite solidly established that to grow fine, clean apples, spraying several times during the summer is imperative. Neighbors might club together and procure a spraying outfit of a more effective make than each might care to afford for himself, while about town, in the vicinity of orchards, the owners of haying machines might add a spraying outfit to their

plant with confidence of profitable employment.

Equally with our own country, the writer was struck with the large number of barren trees and orchards through the fruit counties on a recent visit to Halifax; and in some cases of young orchards where the trees are planted in sod, with no subsequent cultivation. Fruit cannot in these degenerate days be so grown; in young orchards the soil must be cultivated and made as near like garden soil as possible, while in old trees the superfluous wood must be removed. Often three-quarters of the crowding branches taken off would result in a fruitful tree, where now is only barrenness.

BIG APPLE CROPS IN NOVA SCOTIA.

KENTVILLE Advertiser gives the following idea of the big apple crops being harvested in King's County.

The fertile and pleasantly situated tract of King's County called Starr's Point has always been noted for its productiveness. Large crops of potatoes have always been raised there, and interest was taken in horticulture many years ago by members of the Starr family and also by Mr. Prescott. This year Providence has smiled upon this favored section and large root and grain crops and well laden apple trees are the result.

The orchard of Mr. A. C. Starr will produce the largest quantity this year—about 2000 barrels. He has eleven acres in full bearing, five acres more twenty years old, which has not come into full bearing before, on account of being top grafted. Mr. Starr also has twenty-seven acres of young orchard growing nicely and another strip of land will soon be cleared and set out which will make a block of fifty acres altogether.

It requires a great deal of care to look after this large orchard, but the owner is equal to it, and besides has raised this year twenty-seven acres of potatoes. The crop is heavy on most all of this acreage, and fully six thousand bushels of potatoes will be the result.

It is seldom that one sees such fine fruit. Gravensteins, Blenheims, Northern Spys and Fallawaters, were a full crop and of excellent size and color.

Mr. J. E. Starr on the farm adjoining has a good crop of all kinds this year. His orchard will produce fifteen hundred barrels this year, nearly double that of last year. The trees are very thrifty and the quality of his fruit excellent. Gravensteins were a fine crop and Kings were very large and well colored. Some of the largest Baldwins ever seen could be found in this orchard. Mr. Starr and his son George are packing ten barrels of choice fruit for the Paris Exposition. The fruit will go to Montreal and remain in cold storage there until next spring, and then be shipped to Paris. Mr. A. C. Starr will also send five barrels all packed like oranges.

There are three other farms in this vicinity which will produce about one thousand barrels of apples. They are Richard Starr, 1200; Percy Starr, 1000; and Joseph Starr, 900 bbls. We thus find that in five Starr families, all living as neighbors, about six thousand six hundred barrels of apples will be raised. With the price of apples ranging from $2 to $3 per barrel, our readers can realize from the product of this small section we have referred to, the amount of money that will reach King's County this year for fruit.

VLADIMIR AND KOSLOV MORELLO CHERRIES.

SIR,—I have received the thirtieth report of the Fruit Growers Association of Ontario, which gives the fifth annual report of the Fruit Experiment Station of Ontario under the joint control of the Ontario Agricultural College, Guelph, and the Fruit Growers Association of Ontario, for 1898, and on page 41, of the last mentioned report, I find a plate of the Vladimir cherry, giving experiments from the stock which was sent out by your Association in 1887, which was anything but satisfactory and rating it at fourth rate for either home use or market.

Having had some experience with this variety of cherry, I write to say that with your permission I will contribute my knowledge of the same for publication with the hope that it may somewhat rectify the mistaken opinion which is likely to be formed by the readers of said report and with the hopes of establishing the fact that a variety of cherry under the name (Vladimir) is one of the most profitable varieties grown in this section either for home use or market.

Some thirty years ago there was an American Nurseryman by the name of Carpenter established a nursery at Peterboro', Ont, and about twenty-five years ago he sold a large orchard to Mr. Lewis Gleason, of Haldimand Township, and among these trees he got two cherry trees which thrived well and soon commenced to show fruit of very superior quality in abundance, which attracted the attention of the people in that neighborhood who were anxious to get trees of this variety; but as Mr. Carpenter had failed in his undertaking and has since died none knew the variety of cherry or where he got this stock from. However, in the summer of 1891 our salesman, Mr. J. L. Knapp, called upon Mr. Gleason, who told him that if he could furnish this particular variety of cherry true to kind and exactly the same as his two trees, without a doubt, he would take 50 or 100 trees and many others who lived in the same neighborhood told Mr. Knapp that they would also order if sure of getting this particular and profitable variety. Therefore, Mr. Knapp picked some of the fruit which was not fully ripe and also brought in some of the wood and foliage to me to see if I knew the variety, but not knowing it I sent it over to a leading Rochester, N.Y., Nursery Company, believing they would know it, but the result was the same, they could not name it. Therefore, Mr. Knapp returned to Mr. Gleason and secured more fruit and foliage and sent it to Prof. J. L. Budd, of Iowa Agricultural College, Department of Horticulture, Ames, Iowa, and herewith I give you a copy of his reply.

AMES, IOWA, Aug. 17th, 1891

Mr. J L Knapp,

MY DEAR SIR:—Yours with cherries at hand. In leaf and fruit the samples closely resemble the "Vladimir" cherry found in Poland and North Germany as well as in Russia. It is a small tree and has been grown so long from pits that it is exceedingly variable. The leaf is like the variety of "Vladimir" we got from Warsaw, Poland. I believe two hundred varieties of this dwarf morello can be found in the North and East Europe, hence the difficulty of naming. Planted along the highways of East Europe we can find in two miles fifty slight variations from seeds and sprouts.

(Signed,) J. L. BUDD.

Taken from the Iowa State Register, Newspaper, of Friday, September, 1891, Weekly edition:

VALDIMIR CHERRY.

Mr. J. L. Knapp, of Colborne, Ont. Canada, writes Prof. J. L. Budd, Ames, Iowa.

Enclosed in box sent by mail is a sample of an unknown cherry. No one here knows its name and they cannot name it in Rochester, N.Y. I found it in Western Ontario on a farmer's place and they were so hardy, such excellent bearers, and so fine in quality, that

additional trees are wanted. The trees are free from black knot so common here.

(Signed) J. L. KNAPP.

ANSWER.—The variety is the typical Vladimir, (25 orel). This variety we found in North Germany and in Poland, but its home is North Central Russia, where it is grown by the train load. It is a wonderful bearer at the North, and a medium sized, colored, juicy black cherry, nearly sweet when fully ripe. It has a slight bitter flavor which is liked by nearly all who have tasted it.

(Signed) J. L. Budd,

of Iowa Agri. Col. Dept. of Horticulture.

I have had a good many trees propagated from the original trees found on Mr. Gleason's place, and now there are several others who have the young trees bearing in this section and who can testify to the superior quality of the fruit, which is of good size, as well as to the hardiness of the tree which is so well adapted to this country, and which I believe will be extensively planted when better known. It can be readily understood from what Prof. Budd says, that the varieties are so numerous that care must be exercised in starting from a tested tree otherwise in nine cases out of every ten the fruit will be worthless.

Hoping I have not imposed too far upon your valuable space, I remain,

Respectfully yours,

JAMES MCGLENNON.

Colborne, Ont.

NOTE BY THE EDITOR.—We have to thank our correspondent for his letter and criticism of our description of the Vladimir cherry, for this is exactly what we desire in order to reach the truth about each variety described. A comparison of this letter of Mr. McGlennon's, and our description of the cherry there referred to, plainly shows that we cannot be speaking of the same variety. Possibly the Vladimir we have growing at Grimsby is not true to name, or it may be that the cherry propagated by the Chase Bros. as Vladimir is some superior variety, such as *Koslov Morello.* This latter variety is grown as a bush fruit by the peasants in Russia, and would be a most profitable variety for market. The most probable solution of the whole matter is, that the Koslov Morello and the Vladimir Morello are one and the same cherry in a general way, only being all propagated in Russia by the seed, our Vladimir is a worthless seedling, and our Koslov Morello is a valuable one, and possibly nearly identical with Chase Bros, Vladimir.

THE BRILLIANT GRAPE.

WE have two vines of the Brilliant grape, which is certainly a very beautiful and showy variety. Its bright red color, from which it takes its name, makes it noticeable even by the side of its parents—the Lindley and Delaware. It was originated by T. V. Munson, in 1883, and he says of it:—"The Brilliant ought to be a great grape in Canada. It is double the size of Moyer, better in quality, and twice as heavy a bearer. The vine is much stronger, and seemingly just as hardy. It is perhaps a few days later, and clings to the cluster better; besides this has a perfect flower, and the Moyer is practically pistillate.

WINTER PROTECTION OF THE STRAWBERRY PLANTS.

THERE should always be a distinction between winter protection and summer mulch, for it will not always do to get the two things mixed. A good summer mulch can be made use of more or less as a winter protection; but the best winter protection is wholly unsuitable for a summer mulch. Nature's protection — snow—is most decidedly the best of all as far as the nature of substance is concerned, and if it could be depended upon to come early enough and stay late enough to do its perfect work it would be all the heart could reasonably desire. But unfortunately, we cannot depend upon it, so we are obliged to look out for a substitute. As being the most available material we make use of small evergreen trees, the fir being the best. Trees that are from 8-12 feet high are the best; the boughs trimmed off from the lower side so that they will lay where they are placed. Moss, straw, and salt hay are also largely used here as a winter protection and summer mulch. Whatever material that is most available which contains no poisonous matter, and is of a coarse nature so that it will not pack down so close as to exclude the air and smother the plants, will do.

The time to apply the protection depends much upon the locality, and somewhat upon the season and material used, the coarser the material the earlier it can be applied with safety. It will not do to cover closely till the season of dormancy approaches, which begins here about the middle of November, but is not fully on with the strawberry till well into December. The hackneyed advice that goes the rounds of the small fruit department of the press, "As soon as the ground is frozen hard enough to bear a horse and cart so that you can drive over the patch without injury to the plants," etc., is not good or practical. While the ground might many times be frozen hard enough to bear a team during the early morning hours of November this state of things would not last long after the sun is up; and then again, it is not advisable to drive over the patch with a heavy cart at any time when the ground is bare. When the time approaches that the ground freezes nights and thaws days the strawberry patch should receive its covering. It is a good plan to put on a light covering at first, and then later a more complete covering.

There are winters when apparently the plants will pull through without injury; that is the foliage may be all killed and the weak plants heaved out, but all the strong plants will start a strong healthy growth again. But when such plants are compared as to their fruiting side by side with those that were well protected, you will see a marked difference greatly in favor of the latter. I am well satisfied from the results of careful experimenting that by far the greatest cause of the so-called "barrenness" among strawberries of varieties that are usually productive, and also the deformity of the fruit, is due to the effects of severe winters and improper protection.—American Gardening.

TOP-GRAFTING—ITS ADVANTAGES AND POSSIBILITIES.

THE use of top-grafting in the propagation of the apple is very general in Nova Scotia, where conditions seem to be especially favorable for its success, and my object in the discussion of this is to call attention to some of the advantages to be secured by this method of propagation, but which might, perhaps, be overlooked by the orchardist.

Top-grafting as usually practised has this advantage over other methods of propagation, that we know the character of the stock on which we are grafting, and can therefore tell something of what the effect of this stock will be on the variety we are propagating.

That the stock used does influence the scion cannot be doubted, and in proof of this let me cite one or two instances. A most interesting case of this kind was related to me by my friend, Mr. Robert Starr. Briefly stated, it was this: Some years ago Mr. Starr bought a dozen Baldwin apple trees, and when they came into bearing it was noticed that one of the trees bore apples a year in advance of any of the others, and the fruit was so highly colored and ripened so early as to be scarcely recognizable as Baldwins; yet the true Baldwin flavor was there, though somewhat intensified, leaving no doubt as to their identity. The last tree of the lot to come into bearing produced very large, light colored apples that ripened very late indeed, and though, when they finally did ripen, there was no doubt as to being Baldwins, yet the flavor was exceedingly weak, by no means as pronounced as the typical Baldwin flavor. A few years after sprouts came from below the graft on both trees, and were allowed to grow in order to determine what characters the original stocks had It was found that these sprouts exhibited shown the same differences which had characterized the apples. In one case they were small and short jointed, reddish in color, both leaves and twigs, and ripened early in the autumn, the leaves falling before frost. In the other case the sprouts were coarse and green, long jointed, and did not stop growing in the fall until nipped by frost. Without prolonging further this phase of the discussion I may say that numerous similar instances might be given, showing conclusively that the characters possessed by the stock are shown to a greater or less degree by the fruit borne on the tree.

Accepting this as true, let us see what practical application can be made of the principle involved in securing desirable qualities in our fruits, more particularly in apples. First, we recognize that more highly colored fruit is, as a rule, desirable. Is it not possible then to profoundly modify the color of any of our fruit by top-grafting them upon trees of more highly colored sorts? For example would not Gravensteins be improved in color if they were worked upon Ben Davis trees? Undoubtedly they would. From our present knowledge it cannot be accurately predicted to just what extent this influence would be shown, but enough has already been stated to show that whatever influence is exerted by the stock will be toward making the fruit approach in color to the fruit borne by the stock.

Again, as to season of ripening. If so variable and elusive a character as color of fruit is likely to be transmitted,

is it not reasonable to expect that the period at which a certain variety ripens might be changed by varying the stocks upon which the variety is grafted? In this connection Prof. Bailey says: "Grafting often modifies the season of ripening of fruit. This is brought about by different habits of maturity of growth in stock and scion. An experiment with Winter Nedis pears showed that fruit kept longer when grown upon Bloodgood stocks than when grown upon Flemish Beauty stocks. The latter stocks in this case evidently completed their growth sooner than the others. Twenty-ounce apple has been known to ripen in advance of its season by being worked upon Early Harvest. If all this has been done, is it not reasonable to suppose that if the Gravensteins were grafted on the Ben Davis, as was before suggested, not only would the color be improved, but the result would be Gravenstein apples with better keeping qualities? Some one may object here that if the Gravensteins be thus grafted on the Ben Davis it will not only partake of the characters of the latter in color and season of ripening, but in other qualities as well, and we shall have our Gravensteins, the pride of Nova Scotia, tending to become as dry and tasteless as is proverbially the case with the Ben Davis. In answer to this objection I would say that there might be some ground for it; yet it is not a real objection, since in the common practice of root grafting we graft the Gravenstein on to seedlings, not one in ten thousand of which would probably be equal to the Ben Davis.

One other point in this connection is worthy of the most careful consideration, and that is the importance of selecting scions from the best and most prolific trees in propagating any variety. Every observant orchardist knows that certain of his Gravenstein trees, for example, bear more and better fruit than certain others do, and the same is true of other varieties. Not only this, but certain branches of a tree bear better than others. As a proof of this fact that even all branches of the same tree are not alike, I need only to cite the case of the Red Gravenstein, which originated on a single branch of Gravenstein tree. With these facts before us it is scarcely necessary to state the conclusion that the selection of scions for grafting deserves greater consideration than it usually receives. What would be thought of a stock breeder who paid absolutely no attention to the individual characteristics of the animals he bred from! Why, even in an ordinary dairy herd, kept simply for milk, we recognize the importance of individuality and save the heifers only from the best cows. And yet when it comes to plant breeding we take scions from any tree and from any part of the tree—suckers, water sprouts, anything, so long as it is the desired variety. The time has come to make a decided change in this respect, and top-grafting offers the most simple remedy, since it gives an opportunity for each man to select his own scions from his best trees and set them in whatever stocks he prefers.

That in this discussion we are treading upon ground not quite so fully understood as some other fields of horticulture, I am quite well aware; yet it seems to me that we do know enough to warrant the belief that with sufficient care in the selection of stocks and scions we may greatly improve, not only the productiveness of our trees but the color and keeping qualities of the fruit as well.—Prof. Sears before Nova Scotia Fruit Growers.

CONCLUSIONS.

OFTEN it is a puzzle to know which variety of plums to plant. This season, the writer determined to keep strict tally of an orchard planted in 1894 with the following result :—

From 49 trees of Abundance plum 73 baskets were sold, realizing $29.82 or 40c. per basket. Season from Aug. 2nd, to Aug. 15th.

From 94 Geuii plum trees, 93 baskets were picked which sold for $55.11 or 59c. per basket. Season Aug. 6th, to Sept. 3rd.

From 97 Lombard trees 211 baskets of plums were picked which sold for $78.34 or 37c. per basket. Season Aug. 28th to Sept. 9th.

From 107 trees of Reine Claude 227 baskets of plums were picked which sold for $98.26 or 43c. per basket. Season Sept. 11th to 21st.

The same proportionate amount of Ponds Seedling and Yellow Egg made no creditable showing and if this season can be taken as a test, the varieties come in order as a money-maker ; Reine Claude, Lombard, Geuii, Abundance. All were very carefully sprayed with Bordeaux and Paris green, which did not seem to have any beneficial effect for the Cuculio Beetle which seems to show that jarring the trees in early morning would have a better effect on the theory of "catch them and kill them."

The season of harvest is over and what do we learn from it. The packing and grading has been better carried out and in many cases after a brand has become know, good prices have been the result : but "the first hill is the hardest climbing" for when starting grading grapes—which is done when picking off the vine—the writer had the mortification of the inferior 2nd grade selling for from 4 to 7c. more on a 10 lb. basket than the 1st. That was to a commission house but it righted itself in time. The commission man to whom they were sent openly acknowledged, that some sellers will put a man's good grade in with a poor grade lot, as an inducement to the purchaser, but said in time a man's good grade soon became known and the store keeper came repeatedly to buy fruit bearing that brand and would have no other ; it will always pay to make two grades, stamp them as such instead of putting the two grades in one basket.

JUNIOR.

JAPAN TEA GARDENS.

TEN miles south of Kyoto are the famous tea gardens of Uji. They produce the finest teas in Japan, which often command from five to seven dollars a pound. Tea was introduced into Japan from China in A.D. 805, and the gardens of Uji have existed for about eight centuries. Two kinds are grown : a small-leaved variety which yields two pickings a year,—the first about the second week in May and the second about the end of June. The other sort, which has larger leaves, yields one crop about the middle of June. The small-leaved sort is the most esteemed, and the first picking is considered the best in flavor.

It is now well known that the color of tea depends entirely on the treatment of the leaves after being picked. If green tea is desired, they are fired immediately ; while for black, they are spread out on mats or trays, the sap being allowed to ferment in the same manner as we observed practised with indigo, and then fired. The curl or twist is imparted to the leaves by turning and shaking them while in the firing pans.—Rept. Mass. Hort. Soc.

CALADIUM ESCULENTUM.

FIG. 1686.—CALADIUM ESCULENTUM.

SIR,—I enclose photograph of blossom of *Caladium esculentum*. I find that many, like myself, have never seen the blossom of this plant. We have grown them for their foliage for a number of years, but have never known them to develop blossom before. The flowers are from twelve to fifteen inches in length, and in color orange yellow, inside lighter or cream yellow. The bulbs were medium sized, started in hot-bed early in March and planted June 3rd in a dry situation.

GEO. NICOL,
Cataraqui.

We are much pleased to receive so excellent a photograph of this well known foliage plant. Although commonly

known as *Caladium esculentum*, it is strictly speaking another genus of the same order (*Aroideæ*) viz:—*Colocasia esculenta*. It was brought to England from the Sandwich Islands in 1739, and has been much used in the southern counties in beds of tropical plants. It grows to a height of about two feet under favorable conditions. Even in England it is not planted out until early June, for like the Caladiums proper it will not endure cold much lower than 55° or 60° Fahr. In the heat of summer, these plants need plenty of water and in early fall, before danger of frost, the tubers must be stored away in a cellar until March, when they may be started in a hot-bed as practised by our correspondent.

FALL BULBS: SUGGESTIONS AS TO PLANTING AND CULTURE.

IF desired, snowdrops can be planted in a 4 inch pot, and treated like the hyacinths and narcissus; that is, by being watered, and put away in a cool, dark cellar or shed, or put out of doors and covered by several inches of some material (not fresh manure) until the pots are full of roots. They must be kept from frost and not allowed to get dry after root growth has begun. If thoroughly watered when potted they will not require much afterwards until they are brought to the light. The hyacinths and Easter Lily will not be ready to leave the cellar until about the first of January. The Narcissus about a month earlier.

If desired, all these bulbs, except the Lilium Harrisii, will do quite well if planted in the garden. In that case, they should be planted in good soil, and at least three inches below the surface.

The best soil for the potted bulbs would be rotted sod, leaf mould and sand, in equal parts, or very old friable manure in place of the leaf mould. Let the pots be clean and well drained, to allow the surplus water to pass out at the bottom. This is best accomplished by putting a handful of beach gravel or broken potsherds in the bottom, with a little moss or half decayed tree leaves broken over this, to prevent the soil being washed into the drainage. On this fill in the soil for the hyacinths to within two inches of the top, when the soil has been shaken down (not pressed) by jarring the pot on something solid. Then set the bulb in the centre of the pot and fill in the soil around it so that when gently pressed there is an inch left to permit of effective watering. When finished, half the bulb will be above ground. The Narcissus should be just out of sight, and the lily two inches below the surface. Any good garden soil will do if the rotted sod is not at hand.

If preferred, three hyacinths might be placed in one 6-inch pot, but the bulbs should not touch each other when planted.—Mr. A. Alexander, before Hamilton Horticultural Society.

FIG. 1687.—A CLUSTER OF PALMS.

MR. W. HUNT, gardener to Mr. John Stuart, "Inglewood" Hamilton, sends us the accompanying photographs of plants shown at the Floral exhibition. Two, says Mr. Hunt, are Adiantum or Maidenhair, and the other a large palm, growing in the conservatory. According to Mr. Stuart, the owner, the palm was 75 years of age when he purchased the place, 26 years ago. By estimating the first few years growth, and the tiers of fronds since, I make it over ninety years of age. The following are some of the dimensions of this palm (*Cycas revoluta*); height from base to tip of leaves 10 ft. 4 inches; circumference of trunk at base 3 ft. 6½ inches; diameter of scales upon which flowers and seed pods appear, 22 inches when fully expanded; the scales are light brown in color and before expanding resemble (in shape only) a monster cabbage on the top of the stem (Fig. 1688.) The length of a single frond is five feet, and the width ten inches.

FIG. 1688.—FROND.

Of the two Maidenhair ferns, *A. cuneatum* is the older form, and was brought from Brazil, 1820; it takes its name from the cuneate or wedge shaped fronds of the lower pinnae at their base; it is a favorite. The scale of measurement is 1ft. to the inch.

The other fern, *A. gracillinum* is a form of *A. cuneatum*, and is the most delicate and charming of greenhouse ferns. These plants do credit to the gardener who grew them and to the artists who made it possible for us to have such good photographs. See cuts 1689-1690.

HARDY FERNS.

THERE are no more lovely and useful plants for decorative purposes than our Hardy evergreen ferns

For rooms too cool to sit long in as a general thing, these plants luxuriate, as they will endure every change of temperature, even beyond freezing.

needs protection from the sun, and does best in a pot by itself. Edging this box were the dwarf species: *A. ruta-muraria*, *Asplenium ebeneum*, *A. trichomanes*, *Camptosorus rizophyllum* and *Polypodium incanum* and *vulgare*.

No collection of house plants is com-

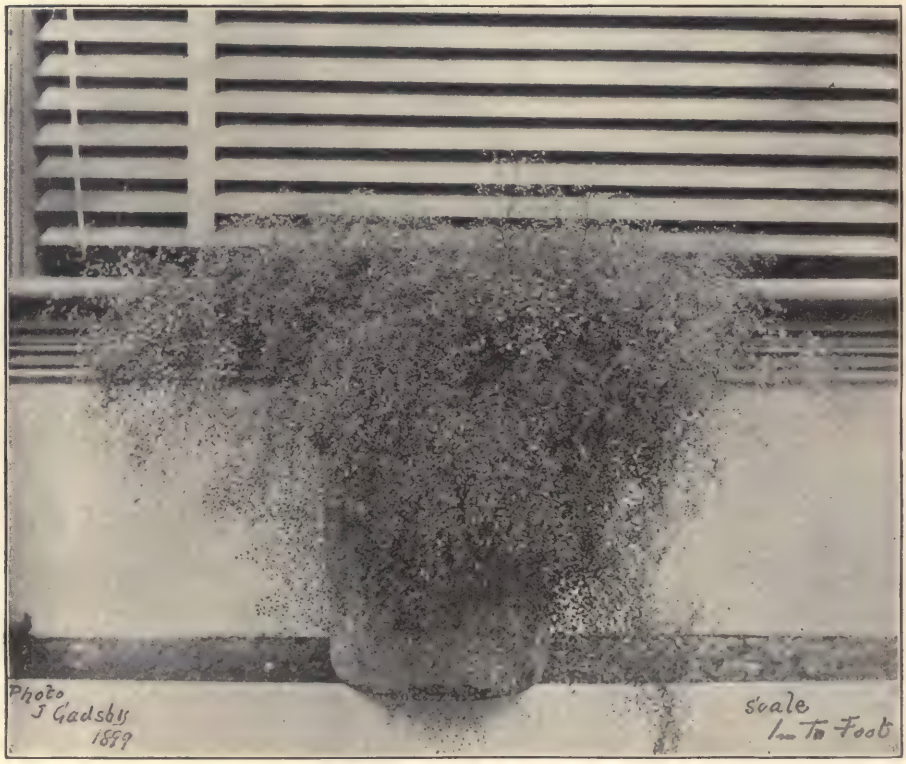

FIG. 1689.—ADIANTUM GRACILLINUM.—*Photo. sent by Mr. Hunt.*

Exotic ferns require the Wardian case, or bell glass; but they cannot compare with the intense green, and freshness of the hardy sorts. A handsome box I once saw, contained, for the centre, *Aspidium acrostichoides*, *A. cristatum*, *A. lonchitis*, *A. spinulosum*, and the climber *Lygodium palmatum*, surrounded by the Maiden Hair *(Adiantum pedatum)*, which

plete without the fern. The Boston is a good one to raise, and is so close a relative to the florid fern, that it is thought by many to be one and the same. The Lady fern *(Asplenium filix-fœmina)* is a splendid pot fern, elegant and vigorous.

Then there is the Rattlesnake fern, largest of its genus. The Ostrich, of

FIG. 1690.—ADIANTUM CUNEATUM.—*Photo. furnished by Mr. Hunt.*

majestic port, attaining five feet in height, with feathery graceful frond. The Royal *(Osmunda regalis)*, that may grow in pots, with care, and the Hart's Tongue *(Scolopendrium vulgare)*, with simple glossy-green fronds, both curious and very interesting.

All these will grow luxuriantly in fresh loam, one-fourth sand, one-half leaf-mould, mulched with well rotted manure. These and the *Asparagus* species are fine for window gardening. Give your little daughter one or more on her birthday, until she has a fine collection. Include the little ball Horizon fern.

M. A. HOSKINS.

Newport, N. H.

SOME DESIRABLE BULBS.

The Roman hyacinths and Bermuda lilies (*L. Harrisii*), which were potted in September, and stored in the dark pit or cellar, should now be rooted and ready to bring to the light, if they are wanted for early blooming. It is best to keep the main stock of winter flowering bulbs in the dark as long as possible; nothing is gained by bringing them forward before the root system is well developed, as the result is almost invariably imperfect blooms, tardily produced. While most of forcing bulbs have passed their prime by November, some varieties, such as the hyacinth and narcissus may still be potted with good results, but the tulips, crocuses and freesias should be let alone, as the probable result will be a crop of leaves without the blooms.—R. N. Y.

GLADIOLUS CULTURE.

THE gladiolus I consider the most beautiful and, at the same time, the easiest raised of all tender bulbs. By tender bulb I mean those bulbs that have to be taken up and housed over winter. Last summer I had in bloom one hundred bulbs, and thirteen different varieties. This is the collection of years, for I have been a gladiolus "crank" for many years. I have all shades of pink, red, orange, cream and pure white, although white is the most difficult to raise.

In the fall, after quite a hard frost, I take a fine, dry, warm afternoon and arm myself with a sharp spade and dig up my gladiolus bulbs. Taking care not to injure any of them. I take them and shake all the earth off and cut the tops off about two inches above the bulbs, with a sharp knife. Then I take a box, put in a layer of dry clean sand, then a layer of bulbs, and so on until the bulbs are all packed. On the top I put about two inches of sand. Then I bid my bulbs a long good bye and put them to rest under the cellar stairs. But the cellar must be dark and frost proof.

The first fine weather in May I set out my bulbs. The most of them will be sprouted, but that does no harm—does not injure the sprouts. The larger the sprouts, the sooner the gladioli will be up. I plant them out in the vegetable garden, for you cannot raise gladioli successfully and crowd them. That is one thing to be remembered. I plant in rows four feet apart, and ten inches apart in the rows, setting about two inches deep.

What a joy when in about ten days the first tinge of green shoot peeps out! Some may not come up for weeks, but just have patience, and they will all come up if the bulbs are sound. My experience has been that if a bulb doesn't look perfectly healthy, it doesn't pay to plant it; it will only be a puny plant all summer and die when the heat of August comes. The terrible heat of last summer destroyed some of my choicest bulbs. Some small worm will also get at the roots sometimes and kill a plant, but not often. Cut worms have cut some for me, but very seldom, and cut worms are easily destroyed before they have done much damage. But the gladiolus is free from all destructive flies, bugs, spiders, etc.

I cultivate with a horse and a common garden cultivator, and hoe them often. I plant the bulbs all at one time, but they will not begin to put out their spikes at once; so I have a succession of bloom for weeks and weeks. Mine begin to blossom the last week in July and keep up until killed by the frost. Some of the spikes on mine, last summer, were eighteen inches long; but then I have the heaviest soil and I fertilize besides, with barnyard manure. The manure must be free from straw or the heat will kill the plants, use no manure of a heating nature; I would rather use none.

Now I will tell you how to increase your stock of bulbs. Last summer I had one hundred flowering bulbs, but more than two hundred little ones, some of which will blossom this year, and some won't. A bulb that has been blossoming once will never blossom again, but instead several new bulbs are formed close around it, and they are the ones which will blossom the following year. So there is an increase of blossoming bulbs of, perhaps, two, four or six, sometimes even more than

that. I always leave the old bulbs attached until spring, when I set them out.

So much for the flowering bulbs. Now for new bulbs which are not ready to flower for a year or two, These are attached to all gladiolus bulbs when you take them up, numerous small bulbs in size from a pin head to a pea. These leave attached until spring, when separate them and plant them by themselves. Some of the larger ones will blossom, perhaps the first summer, but that won't happen often, I tend carefully, and by fall most of them will be fine, robust bulbs, ready for fine bloom by the next summer. Gladioli can also be raised from seed, but I have never tried it.

In my opinion there are few flowers to compare, in beauty in the garden and also for cut flowers, with the gladiolus. All labor expended on them will be more than repaid, if a person is a lover of the beautiful.—Minnesota Horticulturist.

POVERTY STRICKEN GARDENS.

HOW strange that with the great wealth of easily grown, inexpensive material which is possessed in the hardy flowering shrubs as home-adorning material, anything like fair collections of these should be so rarely met about country houses. Shrubbery groups are among the most fascinating and ever-changing plant adornments that can possibly be employed on the home grounds, and the shrubs are no more trouble than the same number of currant bushes. Here is a list of what we consider the best hardy flowering shrubs for common culture. *April Flowering.*—Mezeron Pink *(Daphne mezerum)*, Golden Bell *(Forsythia) May Flowering.*—Japan Quince *(Pyrus)*, Flowering Plum *(Prunus triloba)*, Flowering Almond *(Prunus)*, Thunberg's Spiræa *(Spiræa Thunbergi)*, Plum-leaved Spiræa *(Spiræa prunifolia)*, Lilacs, many sorts; Rough-leaved Viburnum *(V. rugosum)*, Lantana-leaved Viburnum *(V. lantanoides)*, Bush Honeysuckles, Tree Pæony. *June Flowering.*—Silver Bell Shrub *(Halesia)*, Lance-leaved Spiræa *(S. lanceolata)*, Josika's Lilac, Garland Mock Orange *(Philadelphus coronarius)*, Double-flowering Mock Orange, Large-flowering Mock Orange *(P. grandiflorus)*, Dwarf Snowball *(Viburnum plicatum)*, Graceful Deutzia *(D. gracilis)*, Double Deutzia, in several varieties; Weigela Rosea and varieties, Red Branched Dogwood, White Fringe *(Chionanthus). July Flowering.*–Alder-leaved Clethra *(C. alnifolia)*, Billiard's Spiræa *(S. Billiardi)*, Fortune's White Spiræa *(S. callosa alba)*, Fortune's Spiræa *(S. callosa)*, Japanese Spiræa *(S. species Japonica)*, Oak-leaved Hydrangea *(H. quercifolia). Flowering in August and later.*—Altheas, Double and Single *(Hibiscus)*, Large-panicled Hydrangea, Purple Fringe *(Rhus cotinus). Variously Attractive.*—Moneywort-leaved Coteneaster, handsome fruit; Prunus Pissardi, beautiful dark red foliage, all seasons; Purple-leaved Berberry, violet purple foliage; Variegated Cornelian Cherry, handsome white-blotched foliage; Silver-leaved Corchorus, white-edged foliage; Holly-leaved Mahonia, evergreen; Box, in varieties, evergreen.—Popular Gardening.

TULIPS.

WE have endeavored for years to make the growing of tulips more popular, by showing how easily they can be grown, and at the same time not sacrifice any room, which is a great object in small gardens. But what is more important still, to have by their assistance a constant display of bloom from April until November.

When the time for planting arrives, which should not be later than the middle of September, if we are to expect the best results, the flower garden is a mass of bloom which we do not wish to disturb to make room for the tulip, consequently they do not get planted. The general impression is that they should be planted annually, which is an error of judgment at the expense of a loss of flowers in May that cannot be afforded and which need not be.

One September we had sent us a thousand bulbs of the late flowering or show tulips, for which we immediately made room. We planted them in rows lengthways of a bed fifty feet long, placing the bulbs six inches apart in the rows which were eight inches apart; but between every third row we left a space of fourteen inches. When planted we had twelve rows of tulips with three broad spaces between. There were filled with petunias that had been grown in pots, and very soon after the tulips were out of the way the petunias completely covered the ground, and a more showy mass cannot be imagined. This not only utilized the space but it shaded the ground so perfectly that the bulbs were not injured by the summer's heat. After the frost had completed its work of destruction, the bed was cleared and covered to the depth of four inches with coarse litter from the stable This was raked off early in April, by which time the tulips were well above ground, and now, where we planted a single bulb we have a clump of from four to eight flowering bulbs. So rapid has been the increase with this treatment that we shall take up the bulbs soon after flowering and prepare a similar bed for them again in autumn, which will require to be at least eight times the size of the present one.

Our early tulips, planted in the same manner, are a mass of flowers, and do not show the least sign of neglect.

It is well here to remark that while we consider the tulip to be a perfectly hardy bulb, capable of enduring any amount of freezing without injury, in our changeable climate there is, however, some danger of injury from contraction and expansion of soil caused by freezing and thawing. It is, therefore, better to protect the bulbs by a liberal mulch of coarse manure or newly fallen leaves. This not only affords protection against injury from the action of the frost, but it allows the bulbs to do much of their spring's work during the winter, which they will do if the ground is not frozen.

HYACINTHS.

In the border these come on rapidly, and soon will make a grand display. They were amply protected against freezing by a heavy mulching of coarse litter from the stables, which they must have because hyacinths are not hardy. These may be planted in the same manner as we do the tulips, and, if second size bulbs are planted, they will flower well for three years, if the bed is well covered with some annual during summer.

THE CROCUS.

If there is one early spring flower we admire more than another it is the crocus, and our admiration for this flower is in proportion to the care we give it. It is one of the many forms that fully appreciates good attention, and will amply repay all the kindness shown it. We plant these in every warm, cozy corner where the sun delights to linger, and not infrequently we have them in flower the first week in March. But if we expect this result good strong bulbs must be planted in September. Our best display is from bulbs planted three years ago, and from that time frost has not touched them. Not so, however, with the flowers, as they have been so hard frozen several times that they were as hard as ice and as brittle to the touch. But the moment the sun came out the frost departed, leaving the flowers uninjured. We put these in clumps, the bulbs four inches apart each way, and they completely fill the spaces that were between them. We shall let these remain at least another season and as long as they do well, then separate and plant out anew.

SCILLAS AND SNOWDROPS.

These should be planted in alternate rows, or in mixed clumps a foot or more in diameter. As an edging, or for filling small beds, if planted sufficiently thick the effect is matchless. The azure blue of the one contrasts beautifully with the pure white of the other. These can remain for years without removal and seemingly do better the closer they grow. Both remain long in flower, coming the first in spring and remaining until the tulip and hyacinth overshadow them.

THE ANEMONE AND RANUNCULUS.

These were not born for our climate, as they come into flower during winter or early spring. But with little trouble they can be grown in frames and amply repay the labor they cost. As the tubers are easily kept, it is best to plant them about the first of February in a frame where they can be protected, both against frost and sun. In their native element they flower during the rainy season, when there is but little sun or heat, producing a mass of very gorgeous flowers. A frame filled with these flowers in April has no peer in the garden.

CROWN IMPERIAL.

Fritillaria Imperialis is an object to be admired. There is nothing particularly striking in the flower, but its arrangement in clusters on the top of the naked stalk about a mass of clean luxuriant leaves, makes it an object of beauty. While it is not a hardy bulb, when growth commences in spring it seems to defy frost and forces its way through frozen ground. It is pleasing to watch its growth, we see the heads an inch in diameter, coming through the ground one morning, and the next they are fast frozen in, but the moment the ground softens they push themselves forward and are in blossom while yet the ground freezes. Ours were in full flower, (April 15) while during the week previous ice to the thickness of half an inch formed near them.

These we planted early in September, as should always be the case if they are to succeed, as the bulbs are so tender they suffer if long out of ground. Every bulb and plant has its marked peculiarity. This in having a hole through the entire length of the bulb, when it gets to be of flowering size. In buying the bulb, select only such as have a hole through them, as none others will flower. Protect against frost during winter and the bulbs need not be disturbed for a number of years.—American Gardening.

AUTUMN AND WINTER NOTES FOR THE AMATEUR.

THE beautiful autumn tints that so recently appeared on tree and shrub, shedding a glowing radiance of crimson and gold over the surrounding landscape but which now have almost disappeared leaving little but blackened foliage or bare leafless stems to remind us of their past beauty, were only the last brilliant tokens of summer sent to warn us of the approach of the keen nipping frosts and winds of winter; compelling lovers of floriculture to ascertain if they have made due preparation for brightening up their windows with plants and flowers during the dreary days that intervene before the approach of spring, as well as making provision for beautifying the lawn and flower garden for coming summer. Possibly a few remarks relative to these matters may be acceptable, and I trust instructive, to the readers of THE HORTICULTURIST.

It is expected that ere now (November) all tender plants are in their winter quarters, and will require careful attention as to watering, keeping safe from frost, and free from the various insect pests that infest and injure them; such as scale, aphis or green fly, thrip, mealy bug, and last, and possibly least so far as size is concerned, but by no means the least destructive, the pernicious little insect generally known as red spider, but which entomologists tell us is not really a spider. It suffices, however, to know that it causes sad havoc amongst our plants, very few being entirely free from its voracious and subtle attacks, the dry warm atmosphere, generally prevailing in our dwelling houses, being a perfect atmospheric paradise for these tiny little pests. Its presence is soon made apparent by the brown or rusty appearance of the under side of the leaves; lantanas, fuchsias, roses, and carnations being special favorities for its attacks. The last named plant when attacked presents a sickly looking whitened appearance and the three others mentioned commence dropping their leaves and if not attended to quickly will soon be devoid of foliage altogether. The tiny pests can not be seen at their work of destruction with the naked eye, but with the aid of a small microscope they are easily seen by examining the under side of the leaves of the plants attacked.

The best preventive of their attacks is to induce as moist an atmosphere as possible around the plants by syringing, especially on the under side of the leaves, with tepid water. Small rubber sprinklers can be purchased at most florists or seed stores which answer the purpose splendidly for house plants. In greenhouses the hot water or steam pipes may be sprinkled, the vapor so raised making their stay on the plants uncomfortable and less harmful; sprinkling the floor of the greenhouse frequently will help to keep them down. Several other good remedies have been published from time to time in THE HORTICULTURIST which it is needless for me to repeat.

Scale can be kept down by sponging the plant with a wash made from whale-oil soap, one ounce of the soap dissolved in a gallon of hot water, allowed to cool, and applied as often as required. This will generally be effective. I prefer moderate applications frequently applied, rather than severe applications,

as whale-oil soap is injurious if carelessly used. The plants should be rinsed or syringed with clean tepid water after the operation, to remove all traces of the soap.

For the small green or black fly, thrip or similar pests, the easiest applied and most effective remedy is tobacco water, made by placing a handful of raw tobacco, or tobacco stems in a pail and filling the pail up with boiling water. After being allowed to cool, the liquid can be strained off into bottles or jars, and when required can be diluted with equal quantities of water. It can be applied with a small brush or rubber sprinkler and will generally destroy these pests; fumigation by burning tobacco stems that have been dampened or evaporation from tobacco stems are really the most effective remedies, but neither of these methods are so readily adaptable for house plants. Mealy bug is not so destructive to plants as the insects before mentioned, but, if not kept under check, gives the planta very dirty appearance. Constant syringing and picking out the bugs with a small sharp pointed stick and destroying them is the best method to get rid of these floury dusty looking visitors.

Information is often asked as to watering growing plants in winter. It is not easy to give advice on this matter, to meet the requirement of each and every plant, but a few general remarks on this important subject may perhaps be useful. It is best to water your plants early in the day, with water about the same temperature as the room where the plants are growing, giving sufficient water to well moisten all the soil in the pot, and watering only when required which can only be ascertained by close observation. Always water or syringe your plants on fine warm days if possible.

Should any of your favorites unfortunately get touched with frost, the best plan to save them, is to at once remove them from near the window or glass, and place them on the floor of the room and cover closely with sheets or table cloths to effectually exclude light and air without allowing the cover to touch them, and raise the temperature of the room gradually. The covering must be kept on for several hours, and the plants gradually introduced to the light and heat, when if not too badly frozen, they will revive. I prefer the above plan to the cold water cure sometimes recommended, being far easier than the latter method.

Hydrangeas, oleanders, clivias, agaves, fuchsias, crinums, agapanthus and similar plants require very little attention in winter, and can be stowed away under the greenhouse bench, or in a basement or cellar, providing the temperature is a few degrees above freezing, 40° to 45° suiting them very well, as they require to be kept in a dormant or semi-dormant state until early in the spring, when they can be brought out into more light and a higher temperature, watered more frequently and grown on for summer flowering. They require very little if any water during the winter months. I have often wondered that the several varieties of the Agapanthus or African lily are not more extensively grown and used on lawns for summer decoration, as they succeed admirably in large pots or tubs, their long, arching, glossy green leaves and large showy umbels of blue or white flowers, borne on stout stems well above the foliage, making them very attractive. Their flowering period extends over several weeks, usually at a time when flowers are scarce, the blue flowering varieties being probably the most showy and remunerative. A shaded position with plenty of water and perhaps a little weak

liquid manure, meets their requirements in summer. They can be kept in a semi-dormant condition during the winter as before described.

Winter flowering plants such as freesias, cyclamens, winter flowering begonias, primulas, Callas, Bermuda and other kinds of lilies should be well started into growth by this time. The Bermuda or Easter lily often suffers from attacks of aphis or green fly which appear chiefly at the top of the plants just as the buds are showing, or perhaps earlier. Tobacco water or tobacco dust are the best remedies. A little dust from tobacco stems sprinkled on the plants where affected, will generally destroy the insects without injury to the plant and can be washed off before the plants are in flower.

Holland or Dutch bulbs should soon be ready to take from the cool, dark positions they have been started in Roman hyacinths especially should be showing good growth and may be brought into the house at intervals so as to have succession of them in bloom from Xmas, and even as late as Easter, their beautiful waxy white spikes of flowers being particularly suited for Easter decoration. The different varieties of hyacinths, including the pink and blue Romans which are very similar in habit to the Dutch varieties, as well as narcissus, tulips, crocus, etc., require to be well rooted in their pots before growing them on to flower. A cold frame or the sides only of a box of the required size, and about ten or twelve inches deep, is a splendid place in which to start the bulbs. Pot the bulbs in good loamy potting soil and water thoroughly, place the frame or box outside in the garden, dig out a sufficient quantity of the soil inside the box, so that the pots when set in will be about level with the surface of the ground; cover the pots with about an inch of sandy soil and spread over this some straw or long manure, sufficient to prevent frost from penetrating. A few boards over the top of the box to keep out the snow is advisable. The pots will require no more water until they are taken from the frame, which will be in three or four weeks from the time they were potted. They can be left as long as desired if kept from severe frosts and brought in as required, when water must be given them freely whilst growing. A cool dark cellar, shed, or room, will answer as well as a frame for starting bulbs in.

Dahlias, Cannas, Caladium esculentum, etc., ought now to be indoors, packed in sand away from frost. The last named bulb keeps best packed in dry sand in a warm room with a temperature never below 45°; dahlias and cannas can be kept in a warm cellar or root house free from frost. The latter also keeps well laid under the benches of a greenhouse, and can be brought out in April or May, potted and grown on for planting out in the beds in June. By this method the plants are in good condition when planted out, and at once make a display without having to wait for several weeks, as one often does if they are planted out direct from their winter quarters. It is best to stand them outside in a sheltered position for a few days before planting them out.

For geranium plants that have already done good service in beds or borders, and which are often allowed to remain and freeze, some favorite oftentimes being lost entirely, as the cuttings that have been taken from it may fail to root. Possibly a few words as to the method I have successfuly followed for years in keeping old plants over winter, may be acceptable to our readers.

I have often seen geranium plants,

FIG. 1691.—GERANIUM CUT BACK IN THE FALL.

special favorites particularly, dug up from the beds in their full vigor, potted with great care, with foliage and flowers complete; the result being, if they grow and survive the winter at all, that only tall, lanky, almost leafless specimens are secured, and which by bedding out time in May or June are such miserable looking objects that one feels tempted to throw them on the rubbish pile rather than plant them near nicely grown plants. The method I follow is to procure a flat wooden box without a cover, of the size required, and about three inches deep, with a few small holes bored through the bottom to secure drainage, dig the plants up from the beds before frost, and prune the tops back severely. The large roots also may be cut back, leaving all of the small fibry roots possible. The accompanying small photo of a plant cut back, ready to plant in the box, will give a good idea how to perform this operation. Place the plants rather deep and close together in the box without crowding too closely, filling the box nearly to the top as you proceed with fine sand. Rinse sand from a stone road will answer, but lake or river sand is preferable. The plants should be a little deeper in the sand than they were in the soil in the garden. Water the plants once thoroughly, place the box near the window in a warm place, and water only when the sand shows signs of dryness, avoiding keeping the roots too wet. After the plants have started growth well, remove the box to a rather cool position near the window so as to avoid a rapid, sappy growth. The plants can remain in the box undisturbed until spring, except to pick out any decayed or too crowded foliage, when they can be taken out and potted singly into ordinary potting soil and grown on for use in beds or borders; they will produce nice stocky, dwarf plants that will reward their owner with a wealth of flowers that cannot be obtained from young plants, and will amply repay for the time and attention given them. A box twelve inches square of the depth mentioned will hold a dozen or more ordinary sized plants easily.

FIG. 1692.—SLIP.

Cuttings of geraniums taken in August or early in September can be grown in a similar way to that recommended for the old plants except that a box two inches deep will be better for them than a deeper one. Cutting prepared ready to plant is shown in the photograph.

W. HUNT.

Hamilton.

THE PEACH-LEAFED BELLFLOWER.

FIG. 1693.—PEACH-LEAFED BELLFLOWER.

THE Peach-leaved Bellflower, *Campanula persicifolia*, whether grown in the garden or window. There are two colors, white and blue, and they may be had in either the single or double form. The former is generally considered the more graceful of the two, and a plant in full bloom, as represented in the engraving, is a source of great admiration. The seeds should be sown in the spring, and the plants set out where they are to bloom, as soon as they are large enough to bear transplanting. They will then become well established the first season, will endure the winter safely, and make a fine display the second year. In a severe climate protect with evergreen boughs when cold weather comes.—Parks' Floral Guide.

ROSES FOR BEGINNERS,

SIR,—I would like to remind my critics of the gilt-edged list of roses that I was asked to give, that they are overlooking three very significant considerations: (1) that I was restricted to one dozen varieties; (2) that they were to be really hardy; (3) that they must be fragrant.

One thing to avoid in recommending the cultivation of the rose is, discouragements to the beginner. With that aim as a primary object, I would never advise more than a dozen varieties to begin with. Nor would I ever encourage the new beginner to start out with such doubtful varieties as Margaret Dickson, Perle des Blanches, Merveille de Lyons, and a number of others given by one of your correspondents. These are well enough for faddists or enthusiasts, but they are not calculated to bring much encouragement or enthusiasm to new beginners.

But this rose question is now threshed out; for after all one may, say it is still a matter of experience; and each year brings its own experiences; and with the same individual the favorites of one year may not be the favorites of the next. Observing a few general principles, each rose grower will be guided in his choice of varieties by his own experience.

T. H. RACE.

Mitchell.

Our Affiliated Societies.

GRIMSBY.—The exhibition by the Society in the Town Hall, Thursday, 21st Sept., was one of the best that it has ever given. The new departure in showing fruits and vegetables in addition to flowers and plants, proved a decided success and will be carried out in the future, as it was found that it created a much wider interest in the annual display; and it is not to be wondered at, as everyone here is interested in the production of fruit—and probably the finest fruit grown in Canada is produced in this district. The exhibit of fruit proved so good, that it was decided to send the whole exhibit to Guelph, to be prepared for the Paris Exposition, as the Grimsby Horticultural Society's contribution. Parties who had seen the fruit at the Toronto show, said that there was nothing there to beat our exhibition here. A striking feature at the show was an exhibit of fruits prepared for exhibition in England by Linus Woolverton, who kindly lent the exhibit for the occasion. Very few vegetables were shown, but they were of the best. The show of flowers was large and varied, proving that the influence of the Society is being felt. Messrs. Cole and Terryberry were the largest exhibitors of flowers and plants.

The Grimsby Band turned out in full force and did their part in contributing to the interest of the occasion.

E. H. READ, *Secretary.*

NAPANEE.—The annual flower carnival of the Napanee Horticultural Society has now become quite the event of the year, looked forward to with pleasure, and patronized freely by the citizens. The turn-out on Thursday evening, the 21st September, was the largest in the Society's history, repaying well the arduous work devolving on the members in decorating the large building and in the arrangement of plants and flowers. The ceiling was hung with gay bunting and lanterns, and the walls with much bunting and numerous English and American flags. Evergreen trees were placed against the walls, and the whole building illuminated with electric lights, transforming it into a bower of beauty.

Down the centre the tables were arranged, holding alternately plants and cut flowers. Some beautiful specimens were shown of asters, dahlias and gladioli. Many beautiful and rare foliages were exhibited. The chief attraction in the building was perhaps the floral suspension bridge, designed, built and pushed to successful completion under the direction of Mr. W. S. Herrington. The design, along the west side of the building, represented a suspension bridge over a river, showing boats sailing, and a panorama of country on which could be seen roads, houses, flower beds, camps, swan pond, cattle, the farmer in his democrat travelling along, hammock, rustic seats, avenues, trees, etc. The contour of country was first built of sand and covered with moss. The contrast of the greens with the bright flowers of the bridge was very beautiful. The whole work was a great success and admired by all.

The Klondyke scene, showing the mouth of the shaft, with the bucket, was another striking success. The color scheme in this design was charming, reflecting the greatest credit to the ladies who had the work in hand.

The spinning wheel, with all its parts gaily decorated with flowers, was another great attraction, and was continually surrounded by people watching the lady in charge, dressed in the garb of the olden days, go through her patient work.

The management were greatly disappointed over the non-appearance of the "Harpers." This talented company had been engaged at Toronto, and were expected to take part in the Kingston show, but for some unaccountable reason they failed to make connections. There was no dearth of music, however. A number of Napanee's accomplished musicians were present and gave instrumental solos and duets on a piano from Mr. W. A. Rockwell's warerooms. Among those who thus favored the audience were Mrs. O. L. Herring, Miss Lineau, Miss O'Brien (gold medalist of the Toronto Conservatory of Music), Miss Ward, Miss Georgie Herring and Miss Edith Dafoe.

The architect and builder of the suspension bridge was ably assisted by Mrs. J. A. Shibley, Mrs. W. S. Herrington, Mrs. George Napier (Montreal), Miss Harshaw, Miss Stephanie Harshaw, Miss Templeton and Miss Lake.

Those responsible for the creation of the Klondyke were Miss Harshaw, Miss Templeton, Mrs. J. A. Shibley and Mr. George Perry.

The spinning wheel was the work of Mrs. W. H. Boyle and Mrs. James Harmer.

After the carnival was over the cut flowers were distributed among the churches, and the sick around town were remembered with choice bouquets.

THE WINDSOR HORT. SOCIETY issued a fine prize list for their exhibition, in the Curling Rink, Oct. 11 and 12, 1899. The following is a copy of the rules governing exhibitors:—

Entries must be made to the Secretary upon printed forms furnished, not later than the 7th October.

Forms may be obtained from the Secretary.

All exhibits to be placed, and during the exhibition cared for, by a Committee of the Society; and must be in the building not later than ten o'clock on the morning of the 11th of October.

No plants, fruit or flowers can be removed from the building until the close of the Exhibition, without the consent of the Committee of arrangements; but cut flowers injured from any cause may be replaced by others of the same kind.

Exhibitors may attach their names to exhibits only after the judging shall have been completed.

Pot plants of exhibitors will be collected and delivered by vans engaged for the purpose by the Society, but the Society will not be responsible for injury to such plants from weather or other causes during such transportation.

A disinterested professional Florist will be engaged to judge the plants and flowers, and an experienced Pomologist to judge fruit.

All exhibits must be the growth of exhibitors within the county, and correctly labelled.

SALE OF PLANTS, FRUIT, ETC.—At 8 o'clock on the evening of the 12th October a sale of pot plants and fruit will be held under the direction of the officers of the Society; and exhibitors wishing to dispose of surplus stock will be afforded an opportunity of doing so.

Instead of money premiums, a handsome lithographed Certificate will be issued, which the directors have been assured will prove much more acceptable to exhibitors than cash, as it may be preserved indefinitely.

PORT HOPE.—A short time ago, the directors of the Port Hope Horticultural Society met in the Secretary's office. Among other business, the question of plant distribution was discussed.

The feeling of the meeting was decidedly in favor of the present system of premium distribution as being "the greatest good to the greatest number." I am afraid that it would be a hard blow to the HORTICULTURIST, if the suggestion of one of your contributors in August Number was adopted—viz., the offering of a prize for the best essay on "shrubs, etc." This would result in concentrating the amount (which is at present equally divided among the subscribers) in the hands of a few who have had the privilege of a good education, while the bulk of those, equally entitled, could not possibly enter into competition. I am quite sure that your correspondent is desirous of furthering the interest of horticulture, but I have no doubt, that after careful consideration, he will find that his suggestion will not meet with the approval of those who are now enjoying the present system of distribution.

J. C. JACKSON *(acting Secretary.)*

PEACH CULTURE.

A WELL drained, naturally dry soil is best. Thorough drainage is necessary; peach trees will not grow with their feet wet. We have been growing peaches of the Persian family; also varieties from South China. Another type from North China, which we are just getting acquainted with, seems to be more hardy than the Persians. The most notable among the North China peaches is the Elberta. The Early Rivers is one of the hardiest peaches. Some think that Mr. Rivers really had a seedling of a North China peach without knowing it. The Crawford will thrive better on a clayey soil than on a sandy loam. The best soil, all things considered, is a light, sandy loam.

The peach industry tends to increase the value of land. Let ordinary farm land be developed into a peach orchard, and all the land in that vicinity will immediately command $200 or $300 an acre.

The land about the average home is rich in nitrogenous matter, and peach trees planted in this soil will make rapid growth and produce splendidly for one or two crops. But such rapid growth makes soft wood, and the trees will soon die. If we want our trees to live long and be happy we must not give them too much nitrogen. I would prefer poor soil to a very fertile one, and would feed it, but would avoid stable manure. Fertilizers rich in phosphate acid and potash give ripe, hardy wood, and may be used freely. Potash adds to the color and quality of the peach.—Rept. Mass. Hort. Soc.

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE CHARLTON GRAPE.—We have received to-day (September 27th) three bunches of the new Charlton grape. Messrs. John Charlton & Sons, of Rochester, the introducers, say, "We send you a sample of our new grape which we allow to speak for itself"; and certainly if the vine is healthy and productive the qualities of the fruit are such as to ensure it a place among our very best varieties. A cross between Mills (Muscat Hamburg x Creveling) and Brighton, (Concord x Diana) two varieties themselves possessing most excellent qualities, we would expect nothing less than a first-class hybrid. The bunch is large, about five and a half inches in length, shouldered and very compact. The berry is large, skin tough, light red turning dark maroon and almost black at maturity. Covered with a thin lilac bloom; flesh meaty, tender, pulp breaks up readily from seeds, flavor sweet, fairly juicy, sprightly, aromatic, very pleasant.

CORRECTION. — Height of Japanese pine (p. 383) should be two feet and its age 52 years; and instead of Douglas spruce having two companion trees it has only one.

MR. C. W. HARTMAN, of Clarksburg, sends us a freak of nature in two samples of a plum, one yellow and one dark red, grown on the same graft. The specimens seem to be the same in every other respect except color.

THE SOUTHERN FAIR at Brantford has been a decided success this year financially, the receipts being about $3000.

THE CHARLTON GRAPE has been awarded the Wilder medal at the recent meeting of the American Pomological Society. Chairman F. M. Hexamer of the native fruit committee of the American Pomological Society, reported as follows on the Charlton grape at the Philadelphia meeting of the society: "A cross between the Brighton and Mills, raised by John Charlton, Rochester, N.Y. The original vine has fruited the last six years, and its fruit seems to increase each season. The berries are globular in shape, and medium to large in size, moderately compact, and sometimes shouldered; color red, similar to Catawba, quality best, flesh tender and melting, juicy, sweet and vinous, separating readily from the seeds of which there are but few. Skin thin, but firm enough to ensure good keeping and shipping quality. Season early, showing color before Concord, but the fruit is in eating condition before it is fully colored. The vine is a strong, healthy grower and prolific bearer."

TEN THOUSAND ACRES OF LAND of Manitou Island, Lake Michigan, was purchased by a Chicago fruit firm, with the intention of planting it to one great apple orchard. The plan has been abandoned, owing probably to the decline of apple values, and the property will be converted into a summer resort.

THE NATIONAL APPLE SHIPPERS ASSOCIATION complains loudly against the custom in the large English markets of allowing the buyer to return fruit once bought in the auction room. It seems the purchaser has thirty hours after the sale in which to accept or reject his purchase, and very often goods are returned for some show of a reason that they are not as represented and such goods must of course be then sold at a sacrifice. The calculation is that the sale in the auction should be final, as is customary in other lines.

THE WINTER MEETING of the Ontario Fruit Growers' Association is to be held in the Music Hall at Whitby, Ont., on Tuesday and Wednesday, the 5th and 6th of December. Prof. J. W. Robertson will speak on "*The Commerce in Large Fruits*," a most important topic for Ontario Fruit Growers to consider at the present time.

All the prominent fruit men are expected to be present. Representatives will be on hand from the Central Experimental Farm and from the O.A.C., Guelph.

Mr. A. W. Campbell, of the Dept. of Agriculture, will give an address on Good Roads and Cold Storage for Fruit Growers. Mr. E. C. Beman, one of the best pear growers in Ontario, will speak on Varieties of Pears for the Home Markets Mr. Lick, Mr. J. E. Farewell, Q. C., Dr. Waugh, and Dr. Hare will give address. Music will be furnished by the Ontario Ladies' College. These are but a few of the good things before us. We hope for a large and enthusiastic meeting.

THE AMERICAN PARK AND OUT DOOR ASSOCIATION will hold a meeting of its officers and of others interested in its work at Chicago, on the 4th of Nov. The Secretary, Mr. W. H. Manning, may be addressed at the Auditorium, Annex Hotel, during and before the meeting.

This Association is an important one and should have the encouragement and support of all those interested in landscape improvements.

FORMATION OF NEW LOCAL SOCIETIES.—This is the month to consider

the formation of new Horticultural Societies. Mr. Thos. Beall, of Lindsay, one of our directors, is to be sent out by our Association to assist in forming local Societies, wherever his services are required

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MONTHLY MEETINGS of our Affiliated Societies should begin at once and be continued throughout the winter. One paper read and fully discussed, a few flowers on the table for comparison and a little music, will make a delightful evening. The Hamilton Society meets the first Monday evening in each month.

ROSES, CHOICE OF VARIETIES AND WINTER CARE, is the subject of an interesting article by Mr. J. C. Jackson, acting Secretary of the Port Hope Horticultural Society, which will appear in our November number.

THE HAMBURG APPLE MARKET seems to be a good one for fancy colored varieties, which are quoted at $7 a barrel. Ordinary stock would not be worth the freight.

THE ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION will be held in Whitby, Ont., Tuesday and Wednesday, 5th and 6th of December, "The Commerce in Large Fruits," will be the subject of Prof. J. W. Robertson's address, and "Beautifying Country Homes," will be treated by Prof. Hutt. The best talent in the country will be present and the programme will be spicy. Everybody welcome. Copies of the programme, which is now being prepared, may be had on application to the Secretary, L. WOOLVERTON, Grimsby, Ont.

Question Drawer.

Canadian Apple Barrel.

1117. SIR,—Would you please give us through the Journal the size of the legal Canadian apple barrel?

A SUBSCRIBER.

The following is taken from an advance copy of the amendment to the Weights and Measures Act, which has since become law.

2. On and after the first day of July, one thousand nine hundred, section 18 of the *The Weights and Measures Act* shall be repealed and the following shall be substituted therefor :—

18. All apples packed in Canada for sale by the barrel shall be packed either in cylindrical veneer barrels having an inside diameter of eighteen inches and one-third, and twenty-seven inches from head to head inside measure, or in good and strong barrels of seasoned wood twenty-seven inches between the heads, inside measure, and having a head diameter of seventeen inches and a middle diameter of nineteen inches, and such last-named barrels shall be sufficiently hooped, with a lining hoop within the chimes, the whole well secured with nails

"2. Every person who offers or exposes for sale, or who packs for exportation, apples by the barrel, otherwise than in accordance with the foregoing provisions of this section, shall be liable to a penalty of twenty-five cents for each barrel of apples so offered or exposed for sale or packed."

Cutting Back the Clematis.

1118. SIR,—Should Clematis Jackmanni be cut back to root, that is each season's growth taken off, so that the next year's growth will be entirely new?

W. S. G. WALKERTON.

The treatment should vary with different varieties of clematis. Some varieties die back sufficiently, as for example, those of the Lanuginosa type; but with a strong grower like Jackmanni it is quite safe to remove the whole top and cause the growth to break forth fresh from the crown. If, however, even this variety is needed to cover some bare trellis pole, or old tree trunk, time in spring is lost by cutting back, for it cannot so clothe the bare wood with verdure.

✻ Open Letters. ✻

Notes from St. Joseph's Island.

SIR,—I thought perhaps it might be interesting to you to know just how our fruit trees came through a winter here in Algoma, when the thermometer got down to 44 below zero. We know that in Manitoba that degree of frost means not only no fruit, but no fruit trees, with perhaps the exception of that one tree that appeared in a late number of the HORTICULTURIST. Without attempting any explanation, it is a fact that we experienced that degree of cold, and that the loss by trees being killed to the ground would not exceed one per cent. among apples, and ten per cent. in pears. I saw a statement in an American paper the other day, that Japan plums would not stand more than 15 to 20 below zero, without being killed root and branch; but this summer I have examined several trees of Abundance, and cannot see that they have sustained the slightest injury, one tree in particular with a north and west exposure clear through to Lake Superior, although like other trees in the small orchard —leaning away from the cold—was making good growth. Of course, we had little fruit on cherries or plums; the trees bloomed, but the fruit never set, owing, I think, more to the long continued rain when the trees were in bloom in the spring In my own orchard, the only tree that I can say sustained any injury from the cold, was a Yellow Spanish cherry, part of last year's growth being killed and all the fruit buds.

We have had considerable rain during the summer, which perhaps will account for our apples being not so highly colored as usual, still the specimens to be seen at the different Fall shows would be hard to beat even in your highly favored district for anything except size. Fall apples were good, trees of Duchess and Wealthy had in most instances to be propped up as usual. Of long keeping winter apples we have a poor crop, in fact we are yet looking for a long keeper. Scotts Winter is perhaps the best so far, but is too small and too much of the cast metal order. Give us something better if you can.

Our summer boarders, the Forest tent caterpillars, have come and gone. Next year we will have few or none, at least they themselves have made no arrangements for next summer. A neighbor of mine says they ate off every green leaf before they were full grown, and died of starvation before they could spin their cocoons.

I believe their visit has done us some good. You see it is hard for a man who makes the growing of fruit a kind of side show, to understand the first injunction on your spraying calendar, spray before the buds open, but when he sees the young caterpillars, he sees an urgent necessity for killing them quick.

CHAS. YOUNG.

Richard's Landing, Ont.

Japan Plums.

SIR,—In your October issue I note the letter of S. Speedwell under the heading of "Japan Plums in Simcoe County;" now "Simcoe" is a very large county, and there may be doubtless some favored portions of it where the Abundance plum tree will do well and bear fruit; but it is not anywhere about this locality. It would add much interest to Mr. Speedwell's letter to know from what section of the county he writes, say his nearest post office, I have twice procured Abundance and other Japanese plum trees and given them the best of care; at most they lingered for three or four years, blossomed once or twice and then died without ever having yielded any fruit.

C. L. STEPHENS.

Orillia.

The Church and Horticulture.

SIR,—Will you permit me to say to the readers of THE HORTICULTURIST that I am not responsible for the errors abounding in my contribution to the October number. Apart from the use made of that article, the clauses omitted from it and the errors left in it, the October number is an exceptionally fine number.

T. H. RACE.

Mitchell, Oct. 9.

At Covent Garden Market the first arrival of Canadian apples and pears were sold on Wednesday (yesterday) by Messrs. W. N. White & Co. (Limited). The Howell pears made 5s. 3d. to 5s. 9d. per case, and Bartletts from 2s. 6d. to 7s. 6d. Messrs. Elder, Dempster & Co., are dealing with these Canadian supplies at Bristol, and the North of England Fruit Brokers (Limited) at Manchester.—Fruit Grower, Sept. 21st.

The Markets.

Apple Reports.

MESSRS. JAMES ADAM, SON & CO., Liverpool, write:—

Although still very early, the shipping season may be said to have commenced in earnest, a fair quantity, mostly from New York, having already come to hand, as will be seen from the figures given below. Whether results have given satisfaction, however, is more than we can say, as owing to the more or less faulty condition of the fruit prices obtained have been very irregular, defective barrels making from 7/ to 15/, and tight up to 23/ per barrel. In many instances the stock was very tender, and ought never to have been shipped, especially at a time when English-grown fruit is available; indeed, considering this, we have been surprised that such high prices were paid for the better samples of American, and are consequently inclined to take a favourable view of the out-look for winter stock. So far, of course, it has been impossible to form any opinion as to what the quality is likely to be, but we hope, as reports indicate, it will be good, and that shippers will exercise every possible care in the selection of fruit for export, and keep back anything not likely to carry in good condition.

MESSRS. DICKHUTH & SOHN, Hamburg, write:—

In regard to the prospects for the sale of apples from your side in our market, we can only confirm what we said in our last circular, that is for table apples we shall have entirely to depend upon shipments from your country, and we can strongly advise you, to make regular shipments of first grade best keeping winter-apples.

The Trade Bulletin, Montreal, says:—

The heavy shipments of common grades of apples in different markets of the country has had the effect of glutting most markets and of forcing prices to a much lower scale. This condition at market points has very materially changed the situation in the country. Buyers are not anxious for stock and are inclined to hold off, and farmers who have been holding out for higher prices are now offering fruit more or less freely at lower figures, $2.25 being about the top price in a general way for No. 1 stock with some very good fruit to be had at $2 per barrel. The market in this city is somewhat congested, principally with lower grades of fruit, and would propably be even more so had the growers in Jersey and Up-river points been able to have secured help to pick and send in fruit, which in lack of these has had to go to the evaporator and cider maker, or else wasted. Stock in store and in transit has ripened very rapidly, owing to the warm weather, and much fruit originally intended for export has for this reason been thrown on the market. The general range of prices here is from $1.50 to $2 per barrel, although fancy soft, table fruit commands a higher price. On good, sound fruit, well packed, there is a fairly good shipping trade and a moderately good export demand, and on this quality of stock the market is holding fairly steady.

The New York Fruit Trade Journal says:—

Apples.—About all the apples that came forward the past week for market purposes were of such quality as would not do for storage or export. The best of these met slow sale while, very poor stock was hard to move and accumulated. Prices quoted are for fair to choice stock, while undergrades were often sold as low as 50c. per barrel. The following are quotations:

King, per d-h, bbl.	$2 00 to $2 75
Twenty Oz. d-h bbl	2 00 to 2 50
Snow, d-h. bbl.	2 00 to 2 75
Ben Davis, d-h. bbl.	1 75 to 2 00
Fall or York Pip. d-h. bbl.	1 50 to 2 00
Baldwin, d-h. bbl.	1 50 to 2 00
Pelican, d-d. bbl.	1 50 to 2 00
Smith Cider, d-h. bbl.	1 50 to 1 75
Greening, d-h. bbl.	1 25 to 1 75
Open heads, bbl	50 to 1 00
Crab apples, small, bbl.	1 50 to 2 00

Pears.—The demand was smaller than for some time past. Even fancy Bartletts, which are very scarce, met slow sale at $2 to $3 per box. All other varieties were scarce, except Keifers which were quite plentiful with practically no demand. They were quoted at $1.50 to $2 per double-head barrel, but prices were frequently shaded as demand required.

Quinces.—Receipts of Quinces were quite liberal, but fancy stock was scarce. Demand was small at $2.50 to 3 per barrel for fancy and $1.75 to 2.25 per barrel for other grades.

Grapes.—Fancy table grapes were very scarce and wanted. Offerings were poor and hardly worth the price paid, 13 to 14c. per basket. The bulk of grapes coming on the market are for wine purposes, the frost having rendered them unfit for table use. Receipts were heavy and offerings were not all disposed of. Prices were quoted at $25 to 28 per ton for Concord; $25 to 30 per ton for white; $45 to 50 per ton for Delawares and $25 to 28 per ton for Catawba. At the end of the week these figures were shaded considerably.

And further regarding the grape situation:

The grape market has been sadly congested the past week. Owing to the heavy frost the early part of the month, shipments of wine grapes have been rushed very much and the market has had more of this kind of stock

than it could properly absorb, and prices show weakness with a further decline in sight. It is estimated that four-fifths of the crop on the vines at the time of the frost were destroyed as far as use for table purposes is concerned ; but they are being shipped forward for wine grapes, and the growers will probably do equally as well as though they had been shipped for table grapes. This applies to the black and while varieties only. Catawba were almost a complete loss in the frosted district, as the berries had not ripened sufficiently to make wine, and were so badly frozen as to cause them to drop from the vines. Table grapes are not so plentiful, though in sufficient supply to meet the demand. Many of the larger concerns are holding their stocks of table grapes for later markets. The warm weather has been unfavorable for the keeping of grapes, being especially hard on those in transit or in cars waiting to be unloaded, and we advise lighter shipments for a while, as the only remedy against a glutted market and lower prices.

THE SCILLA SIBERICA.

FIG. 1694.—SCILLA SIBERICA.

THE Scilla Siberica is one of the loveliest of the small flowered bulbs. Its blossoms are of the purest blue, of the most exquisite shade you can imagine. They grow on slender stems and are frail and delicate in appearance.

One fall I put a lot of these little bulbs out of doors, and early in the spring they began blooming, the tiny bulbs seemed rather to outdo themselves in sending up flower stalks and the dainty, delicate blossoms were very fair to look upon.

It will pay any flower lover to invest in a few (or a good many) of these bulbs ; they cost but a trifle and they make an ideal border for a bulb bed anywhere. They are much finer if set in rows of half a dozen wide or even more. The bulbs may be set closely and should not be covered too deeply. Set them perhaps three inches apart and as many inches under cover. Mulch the bed after setting, or before cold weather comes on too severely. Still they are hardy, perfectly so, but a little protection given even to the hardiest bulb, will make itself shown in the size and quality of the flowers.

The scilla makes a pretty bulb for forcing, as it blooms so early it may easily be had in blossom for the winter holidays. A dozen or more of the little bulbs may be set in a six inch pot After setting, put away in the dark to root, for some six weeks. then bring to the light and you will soon be rewarded by the shooting up of slender green stalks and the blossom stem almost at the same time. They continue in bloom for quite a length of time, and while they cannot compare with some other bulbs for size, their dainty exquisiteness may, to some, make up for such lack.—Vick's Monthly.

Fig. 1695.—Pond Road, near Yarmouth, showing old French Pollard Willows.

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YARMOUTH GARDENS.

FIFTEEN hours on the old Atlantic brings us from Boston into Yarmouth harbor, the most southern part of Nova Scotia. Beautiful scenery and cool summers make this a favorite resort from the heat of New York and Boston, and thousands take advantage of this feature. The summer fogs are also very constant, making the climate to resemble closely that of England. This condition of things explains why it is that strawberry growing has lately been found so remunerative, so that thousands of crates are sent in their season to the Boston market. Roses grow here in the greatest perfection, and indeed the gardens are a perfect wealth of bloom, never drying and baking as they do with us in July and August. In some gardens we saw beautiful specimens of Lilium rubrum in the middle of October, and any quantity of dahlias, gladioli, tuberoses and begonias, still in the height of their beauty. In Mr. Caie's garden we saw also sweet peas 6 feet high on a summer house, full of bloom at this date, no uncommon thing. One remarkable feature of Yarmouth is her

FIG. 1696.—HAWTHORN HEDGE, 60 years planted.

FIG. 1697.—HAWTHORN HEDGE AT YARMOUTH.

hawthorn hedges, which will not endure the hot dry climate of Ontario. Here they grow most luxuriantly, and are used in place of fences around all the best places. One of which we took a snap, Fig. 1696, is 60 years planted, and well worthy of especial notice. Even in the cemetery many lots are surrounded with hawthorn hedges, some with white spruce, which is much more enduring than the Norway, and one we noticed was enclosed with a fine beech hedge, the first we ever saw in Canada. This Yarmouth Cemetery was very pretty, but the enclosing of the lots with hedges is, in our opinion, a mistake, spoiling the unity of design, and giving stiffness of effect. Another fault, if we may criti-

FIG. 1698.—RESIDENCE OF MR. WYMAN, YARMOUTH, N.S.

cise what is really a place of many attractions, is the numerous walks and drives, which make gravel almost more conspicuous than greensward, and an old fashioned habit of raising mounds over the graves instead of simply marking with a low head and foot stone, which makes it such a difficulty to keep the lawn well mown. Another thing that reminds one of English conditions is the English ivy which also grows here most luxuriantly. Climbers are in common use here, the Japan ivy on the year for wood, and still their health and vigor is not impaired. Our frontispiece shows this road, with Yarmouth in the distance and Pond Lake on the right, a fresh water lake only separated by a few feet at one end from the salt waters of the great Atlantic.

Any mention of Yarmouth from a horticultural standpoint would be incomplete without some reference to Mr. Charles E. Brown, a graduate of Harvard and one of Yarmouth's most public spirited citizens. He received us with

FIG. 1699.—YARMOUTH HARBOR, SHOWING LANDING OF D.A.R. STEAMER, AND THE OLD CEMETERY IN THE FOREGROUND.

churches, and in addition the honeysuckle, the climbing rose, and the Virginia creeper on the houses.

The trees used in the streets are hard and soft maples, Sycamore maples, elms, beeches, Balm of Gilead, Silver poplars, etc., and here and there a fine hawthorn, allowed to develop its full size and beauty.

Along the old road from Yarmouth to Hebon numerous old Pollard willows are growing, planted a century ago by the French. The tops are cut year after that extreme cordiality so common among horticulturists and others of congenial tastes, and lost little time in making us acquainted with his garden, which is well described by the old Latin phrase, "multum in parvo." Almost every apple tree has several varieties top grafted upon it, and over seventy varieties have in this way been tested and reported on for Southern Nova Scotia. He finds the following worthy of planting, viz., Duchess, Primate, Keswick

Codlin, Gravenstein, Wolf River, Wealthy and Ontario; the Primate especially for a fall eating apple, the Keswick Codlin for cooking, and the Ontario and Duchess for market. The Spy is small and inferior in quality all through the Province. At Yarmouth the apple tree is not vigorous; it is much subject to moss and fungus, and especially to the old English apple tree canker. Mr. Brown's gooseberry bushes do well; he has tried English varieties, *e. g.*, Yellow Amber, Industry, White smith, White Champagne, Red Warrington, and has never been troubled with mildew.

In the vicinity of Yarmouth neither plums nor grapes will ripen in the open, and no one attempts to grow them except under special conditions. The former Mr. C. E. Brown says he has ripened trained espalier style on the side of his house. We saw an espalier at the home of Mrs. P. D. Kinney, a Washington plum, well trained to nearly cover one end of her house, and which has yielded about one bushel in a single season.

Grapes may be ripened under glass without heat as in England, and there are about twenty of these cold graperies about Yarmouth, all well filled with such varieties as Black Hamburgh, Red Chasselas, Tokay, etc.

During our tour in Nova Scotia we met some of the progressive apple growers of that province, from whom we gained much information. The Annapolis valley is justly famed as an apple growing country, and has already gained a good name for Nova Scotia apples in the great markets of the world. Owing to the moister climate of this province the fruit ripens later than in Ontario, so that the Ribston and the Wealthy are counted winter apples, and the Spy and Baldwin keep longer than the same varieties grown in Ontario.

Red Astracan and Duchess are grown a little, and shipped to Newfoundland via steamer, but the commercial orchards are chiefly winter apples, such as we grow in Ontario. The one grand exception is the Gravenstein, which has been largely planted, and is freely exported to England. This apple is worthy of a larger place in Ontario orchards; the tree is one of the most thrifty growers, and quite productive of the very finest apples. The Blenheim closely competes with it in favor, and it is questionable which is the more to be commended.

Three well-known varieties have been condemned in Nova Scotia as well as in Ontario, viz.: the Fall Pippin for spotting, the Ribston and the Spitzenberg for want of vigor in tree. Another is on the black list for spotting, viz.: the McIntosh Red. Two most worthy varieties seem too little known, viz.: the Wealthy and the Ontario. Both these varieties have been tested by Mr. Chas. E. Brown, and have succeeded even at Yarmouth. For several years he has been reporting on them most favorably, as varieties of the highest excellence for all purposes, but as yet they have not been much planted.

The Baldwin is a great favorite among winter sorts, bearing great crops each alternate year, just as it once did in Ontario; but perhaps it would fail if they were to plant whole orchards of this one variety as we have done. The King, they tell us, bears very well and is counted a profitable variety, as are also the Spy, Ben Davis and Nonpareil. The latter closely resembles our Roxbury Russet, but is larger and darker colored.

Nova Scotia apple growers have an

especial advantage over their Ontario brothers, in comparative immunity from Codling moth. In orchards at Berwick it is estimated that not more than ten barrels in one hundred are affected, while in some of our Ontario orchards, this season, forty out of one hundred is not too high an estimate.

The best Nova Scotia orchards are the cultivated ones, and those which also get an occasional dressing of potash. Mr. Chute, of Berwick, says he seldom crops an orchard after it is over ten years of age, but cultivates and manures his orchard as the only crop.

Apple packing is commonly done in the orchard as the picking progresses, but some bring all apples to a central packing house. No. 1 are large perfect apples, No. 2 are small perfect apples, but no attempt at grading to definite sizes has yet been made.

It would certainly be well if Nova Scotia and Ontario could agree in this matter, so that grade No. 1 would mean everywhere apples not less than 2½ inches in diameter, excepting possibly the Fameuse, which should be allowed No. 1 not less than 2¼ inches. No. 2 would then mean apples below these sizes respectively, or otherwise inferior.

The prices of winter apples are from two and a-half to three dollars a barrel, or about the same as in Ontario, and the buyers have little advantage over us, having about 15 cents a barrel to get them to the seaport of Halifax, while we have from 30 to 45 to Montreal, the ocean freights being about the same.

Apple barrels are cheaper than ours, the common kind being made of spruce, fir or pine, with half-rounds of young birch trees for hoops, the price being about 18 cents each. The size is 2½ bushels, the old American pony barrel, but this will soon have to be discarded, for in 1900 the new Dominion regulations will compel the use of a standard barrel.

Plums, grapes and even peaches are grown to some extent in the Annapolis valley, but the black-knot has largely cleared out the former. When properly looked after, such varieties as Bradshaw, Arctic, Lombard and the Japans, Burbank and Abundance, have proved very successful.

THE MEALY BUG. — What is know as the Mealy bug is a flat, tender, yellowish insect, of the form shown in the engraving, and is covered with a white, mealy substance, from which the common name is derived. It is especially troublesome to Coleus, strobilanthes Dyerianus, and many soft-wooded plants. It is not difficult to eradicate. Remove and destroy all that may be found, then syringe the plant two or three times a week with soapsuds to which has been added a little kerosene, say two tablespoonfuls to a gallon of suds.—*Parks' Floral Guide.*

HENS AND APPLES. — L. Cook, of Mass., says he enclosed a half dozen unproductive canker worm infested apple trees as a chicken yard, and as a result the insects were cleared and the trees produced good crops of fine fruit. R. N. Y. says, "The hen has a golden claw. She is a professor of Agriculture too, and teaches clean culture and lots of it, with high feeding for a fruit orchard."

APPLE GROWING IN THE ANNAPOLIS VALLEY, NOVA SCOTIA.

FIG. 1700.—CLEAN CULTIVATION in an orchard set fifty years ago.

THE first beginnings of apple orchards in Nova Scotia seem to have been made as far back as the days when the French Acadians occupied the lands of the Annapolis Valley, for no relics of old times are so common as the old French apple trees which stand, either singly or in groups, in almost every locality where French settlements are known to have existed. Later the English settlers from New England brought seeds and scions and planted them about their homes, but it was not until about 1850 that anything was planted which would now be considered as an orchard. Even as late as 1870 the whole valley exported only about 17,000 barrels and the largest part of the orchards now bearing were set within the last twenty-five years. So that in reality this industry has been of especial importance only in comparatively recent years.

Unquestionably natural conditions of soil and climate are important factors in producing the peculiarly fine apples for which Nova Scotia is noted, yet to growers themselves is also due a large measure of credit, for they practice the latest and most approved methods in every department of this business. Young orchards are cultivated from the time they are set until they reach a bearing age, the most common practice being to grow some root crop between the rows for a number of years

and each year to grow less and less giving more room to the extending roots of the trees. Among the best growers this cultivation is continued each year even after the orchard has grown old in the service, the cultivation beginning as early as possible in the spring and continuing till the latter part of July, when usually some cover-crop is sown. Buckwheat is the one most used though clovers are coming into favor. In the matter of plowing of orchards growers are divided in opinion, some favoring fall plowing, while others prefer to wait until spring. There are unquestionably advantages to either method. Fall plowing covers in the decaying fruit and leaves, thus lessening the danger of infection from such sources and it causes the land to warm up earlier in the spring, which is an important consideration in a climate where the season is so short as in Nova Scotia. On the other hand spring plowing gives much less danger of winter killing through the roots being exposed to the frost, and if the orchard is sown to a cover-crop all the leaves are retained on the land as well as the snows of winter.

Spraying has become a regular part of the season's work in most orchards and though there are still those who are skeptical as to its value, it is every year becoming more general. Most growers spray from three to five times using Bordeaux mixture and Paris green, and a few have tried winter spraying. Another practice which is becoming more popular each year is the use of a solution of potash applied to the trees either as

FIG. 1701.—PICKING APPLES AND SORTING IN THE ORCHARD.

FIG.—1702.—A YOUNG GRAVENSTEIN TREE, fifteen years set.

a wash or a spray. It is particularly valuable in destroying bark lice and clearing up the trees generally, but just what its effect is upon fungous pests has not been definitely determined. There are some indications however, that it is equally as effective as Bordeaux mixture in fighting the black knot of plums and the black spot of apples.

Of the varieties of apples grown in Nova Scotia none are more popular than the Gravenstein, it is generally healthy, comes into bearing fairly early in life, and continues to give large biennial crops as long as it is cared for, and even longer. The only possible objection to it is its season, for a winter apple of equal quality would soon distance all our present winter sorts. The Banks or Red Gravenstein, a bud variation from the orthodox Gravenstein, is gaining in popularity because it combines with the superior quality of the ordinary Gravenstein, the bright red color which people demand who judge an apple by its appearance alone (and this includes about nine tenths of those who buy apples.) Other deservedly popular sorts are King, Ribston, Blenheim, Baldwin, Golden Russet, Nonpareil, Northern Spy, Fallawater, and Rhode Island Greening; while Wagener, Ontario, Stark, Wealthy, Mann and Ben Davis are, for the present at least, gaining in popularity.

In gathering apples baskets are used almost altogether, and the fruit is either sorted and packed in the orchard or taken to the apple house and stored until it is ready to be shipped when it is packed. In disposing of their apples growers are about equally divided between selling to buyers here in the valley or shipping for themselves to the

English markets. The great bulk of the apples of Nova Scotia go to London and are consumed there though many go to Liverpool and a few find their way from these two ports to other large cities of England.

Throughout the valley there are now numerous large warehouses along the railroad line, built either by speculation, by co-operation companies of the growers themselves or by English commission firms, in which growers may store their apples for the season or deposit them while waiting for cars to take them to Halifax which is especially convenient in handling winter varieties.

Nova Scotia has, no doubt, much to learn concerning apple growing, but it cannot be denied that there has been a wonderful advance in all lines since the advent of commercial orcharding in the province.

F. C. SEARS.

Wolfville, N. S

FIG. 1703.—PICKING BALDWINS which are taken to the Apple House and Stored to be Repacked later.

COLD STORAGE MATTERS.

THE accompanying table shows the temperature in degrees Farenheit for preserving some of the most common horticultural products, and indicates the packages in which they should be expected to keep.

Product	Temperature	Package	Time
Apples, sum'r.	38 to 42	Boxes	2 to 4 mos
Apples, win'r.	32 " 35	Bbls. or bxs.	5 " 8 "
Pears	33 " 38	Boxes	1 " 5 "
Peaches	34 " 38	Crates	2 to 4 wks
Grapes	38 " 40	In sawd't bxs.	6 " 8 "
Plums	35 " 40	Crates	2 " 4 "
Berries & cherries	40	Quart boxes	1 " 3 "
Tomatoes	38 " 42	Crates	2 " 4 "

FIG. 1704.—SORTING AND PACKING RIBSTONS as they come from the orchard.

The length of time fruit and vegetables will keep differs in different sections and the degree of cold may vary. Some varieties of California fruit will keep in cold storage longer than the same varieties grown in the East. Fruit grown at low altitudes and near the coast keeps longer than fruit grown in the interior. Ice temperatures of the same degree will not do in preserving fruit; in practical cold storage other conditions must be reckoned with, viz., humidity, circulation of air and the quantity of nitrogen present, and of the latter the less the better.

Fruit should be in as small a package as possible. Each piece should be wrapped. Winter varieties keep longer in cold storage than summer varieties. Where practicable let apples remain in the packing houses a few days before packing for cold storage and immediately before that operation go over the fruit and cull out all unsound fruit. After the "sure decays" have been removed, wrap and pack the balance.

Cold storage does not and cannot improve the condition of fruits or other products. At best it can only hold them at approximately the condition they were in when put in the cold rooms. It cannot save from decay fruit which is imperfect or unsound. A few decaying specimens are liable to ruin the whole package. Sound fruit only will keep in cold storage.—California Fruit Grower.

CENTRAL EXPERIMENTAL FARM NOTES—III.

FIG. 1705.—VARIETY TEST OF CELERY at Central Experimental Farm, 1899, with offices, chemical laboratory, and buildings in background.

THE weather has been very changeable during the past month — at one time bright, then overcast, and quite frequently wet. While occasionally there was frost at night, it was not until the 12th of November that the temperature sank low enough to interfere materially with outside work. On the nights of the 12th and 13th, there were 15 and 18 degrees of frost, respectively. It may, however, be some days before the final "freeze up." It is when severe frosts begin to occur that one realizes the importance of having a good cover crop in the orchard. At the experimental farm a fine covering of common Red Clover may be seen in most of the orchards. Experiments were tried in sowing the clover seed weekly in different parts of the orchard, beginning on 10th May, and continuing until 31st May. There was a good catch from the first three sowings, but that sown on the 31st did not do well. Sowing was then discontinued until July 4th, and from that time until the 16th August clover was sown at intervals. There is a good cover crop of common Red clover from seed sown as late as 25th July, except on sandy loam, where it did not make sufficient growth. There was a very dry time after that, lasting about a month, the result being that the seed sown later than 25th July did not germinate until September and then only a small proportion grew. This land has been given a top dressing of manure which will afford somewhat the same protection as the clover would have done. To be certain of a good cover crop, clover should not be sown later than the mid-

dle of July where the conditions are somewhat like those at Ottawa. Twelve pounds of seed per acre, sown broadcast have given good satisfaction. No nurse crop has been found necessary, as a rule. In one of the higher parts of the orchard where the soil is light, Lucerne or Alfalfa seed was sown broadcast on the 25th of July at the rate of 15 pounds to the acre, the land was then rolled. The succeeding days were very hot, the soil—which is quite sandy—was almost burning to the touch, yet the seed germinated and did not appear to be injured. Just as a few young plants were beginning to appear there was a severe wind storm which blew the surface soil in clouds of dust, yet the Lucerne, though thinned considerably, continued to grow, and it is now from 7 to 12 inches in height ; a little thin, perhaps, for a good cover crop, but sufficiently thick to hold the snow well. In this instance, where the land was very exposed, a nurse crop might have proved beneficial. Lucerne stands considerable frost without injury and grows until late in the season.

Some replanting was done in the forest belts during the past month. In several places the trees which were planted nine years ago did not make satisfactory growth, owing to winter killing and unsuitability of soil. These were removed this autumn, and replanting with other kinds was started. The trees have been planted much closer than they were before, being now 2½ by 2½ feet apart. A large proportion, however, are only intended to serve the purpose of shading the ground and killing the side branches of the permanent trees: Rose-Mary-leaved willow, Ninebark (*Neillia opulifolia*), Box elder and Sugar maple being used for this purpose. The permanent trees will be mainly composed of White Pine, Black Walnut, and White Ash, although others will be planted in the spring. It is expected that by this system of planting no cultivation will be necessary after two years.

The grape vines have already been pruned and covered for the winter. Considerable attention was given to the pruning of the vines both this year and last, and as soon as possible all the old arms will be removed and the " high renewal " system or a modification of it, adopted. In order to have as thick a covering of snow in the vineyard as possible the canes, when cut from the vines, are allowed to remain on the wires all winter. These break the force of the wind and drifting snow and cause the latter to settle, thus affording greater protection to the vines.

Celery did very well here this year. Market gardeners in the neighborhood complained of Celery rust, and the crop of one in particular was ruined by it. The celery at the Experimental Farm was covered with the Bordeaux mixture until autumn, and although no unsprayed plants were left as a check, yet there is no doubt but that the Bordeaux mixture prevented it. About 50 so-called varieties were tested. Of the the earlier sorts, the Golden Self Bleaching, Paris Golden Yellow, and improved White Plum are the best.

The annual note taking on the hardiness and growth of the trees, shrubs and herbaceous perennials in the Arboretum and Botanic Garden is now almost completed. There are over four thousand specimens of trees and shrubs alone growing there, and to examine each one and make the necessary notes takes considerable time. The information gained however, is valuable ; for instance, trees and shrubs which were not injured by the winter of 1897-98 may have been by that 1898-99, and, after several years'

FIG. 1706.—GLIMPSE OF ARBORETUM at Central Experimental Farm, 1899.

records are taken, the average will give and has given, a fairly accurate idea of the hardiness of the different species and varieties. It is interesting to note the greater degree of hardiness of individual specimens of some trees and shrubs which, when first planted, killed back one half or more each year and which appear to be getting hardier every year. Illustrations of this are the Smoke tree (*Rhus Cotinus*), Flowering Dogwood (*Cornus florida*), English hawthorn (*Cratægus Oxyacantha*), a few individuals appearing to get hardier each year. A specimen of the Cucumber tree (*Magnolia acuminata*) on the ornamental grounds, broughtf rom London, Ont., by the director twelve years ago, killed back badly until last winter when it was hardy to the tips. When possible, seeds are obtained of these hardier specimens and sown, and we have now young seedlings of some of them, among which will doubtless be individuals hardier than their parents.

W. T. MACOUN,
Horticulturist, Cent. Exp, Farm, Ottawa

APPLE STORAGE.

PROPER storage for fruit is an important adjunct of the apple growing business. In certain circumstances it is indispensable. For this reason apple growers have given considerable attention to the construction of storage houses and to learning the best methods of keeping the fruit. From information collected and sent out by the horticulturist of the Vermont Experiment Station it seems that apple storage houses are becoming rather common in the principal apple growing sections of Vermont, particularly in Grand Isle County.

These houses are built without means of artificial refrigeration. They can be kept cool enough from the outside atmosphere; and can usually be kept warm enough if the walls are carefully built. A small stove is usually kept in the storage house and is called into use on specially cold nights.

Old barns or granaries are sometimes converted into apple storage rooms. A good cellar is occasionally used to advantage. Adequate protection from the cold weather and suitable ventilation are the principal requisites.

The most important condition in storing apples is the temperature. The storage room should be kept very near the freezing point, ranging preferably from 33 to 35 degrees Fahr. Even a degree or two below freezing will ordin arily do no damage. Temperatures which will ruin potatoes and other vegetables are entirely favorable to apples; and, conversely, temperatures which are suitable to potatoes are too high for apples.

This last consideration explains why a great many folks have difficulty in keeping apples in their cellars. The same cellar which keeps vegetables perfectly will not give best results with apples.

This is something to which every farmer especially ought to give attention. For every farmer certainly ought to raise apples enough for the family. Even if there is no fruit to sell, there ought to be enough to furnish a full supply throughout the winter.—Vermont Experiment Station.

PRINCE EDWARD ISLAND.

Notes on the Past Season's Work.

ALTHOUGH our sister Province of Nova Scotia is rejoicing in a bountiful fruit crop, perhaps the largest in years, this would be considered in the true sense of the term "an off year" in Prince Edward Island. There will, therefore, be but little fruit for export to the British market, which gave our trial consignment of last year such a hearty reception. But although we have not a great deal of fruit to show this fall, this important industry has none the less occupied the attention of our people. Considerable planting out of new orchards, top grafting, replacing and fitting-up of old ones has been done. Then more attention than ever has been given to the all-important work of spraying. We have, too, with the assistance of that excellent work "Fruits of Ontario," and by the aid of experienced horticulturists within and without the Province, come to have the most of our apples identified, and this is a very important matter and one not so easily accomplished as amateurs imagine. The various names given to some one variety by a half dozen experts would soon convince the incredulous that some apples at least are difficult enough of identification.

This work of naming is particularly practical just now with us, because the fruit industry is comparatively new, and, as I said in a former article, the trees sold here, as well as being inferior from many other points of view, were in few cases true to name. Only the other day was it discovered that a farmer in the eastern portion of the Province, who had bought and planted Baldwins and Russets, had now an orchard bearing the most beautiful Starks and Kings. His case was one of the happy mistakes which are made by those of us who take stock on faith, but I fear for one like this, we have ninety-nine in which only the veriest trash replaces the well-known good apples desired. This mistake has emphasized the fact, however, that Prince Edward Island can grow splendid Starks. In our shipment last year some of those apples were forwarded as Baldwins, and the British merchant, in returning a top figure for them, declared them the best Baldwins on the market, and held the demand for them to be unlimited. Mr. McLaughlin, a most efficient graftsman from New Brunswick, put on quite a number of Stark grafts here last year, which we are hoping will shortly put us in possession of the fruit which the British merchant so much wants.

For the first time I heard the other day from Senator Ferguson, who had been attending the exhibitions in Nova Scotia and New Brunswick, that the Ben Davis tree was regarded as slow growing, delicate and of short duration in Nova Scotia, and that in the eastern part of our Province it was not vigorous. I send you a sample of my own Ben Davis this year, an off year, when I have taken a barrel of this same sample off a tree but seven years planted. And the Davis has so out grown all other trees in my orchard as to make the casual visitor believe that it was planted many years previously. It is a grand grower here, and what is still better, a grand bearer, neither lice nor spot affect it at all; as to the duration of the tree itself, we will have to ask some Ontario orchardist, who has the experience and a place for the Davis in his

affections. I am inclined to the belief that it will live long here and do well in any part of the Province.

As you know, the Federal Government sent us a man last year to prune, spray, graft and pack, we thought. Well, very little practical good came out of the mission. We had not the right man and instead of being in the charge of the Association, which has an interest in fruit raising only, he fell into the hands of the politicians. I need not tell you the result. His mission has been a complete blank. He only attempted to spray, anyhow, and it has come to this, that a man with a proper machine and the formula can spray after one attempt, if he understands his machine and is possessed of ordinary intelligence, as well as the best of them And the orchardist who attempts to raise fruit now without spraying is a back number. All then must learn to spray for themselves.

As to grafting, our Association secured a very considerable number of good scions from Nova Scotia and elsewhere last fall, and expected that the specialist sent down from Ottawa would put them on a number of orchards throughout the Province at a minimum of cost. He never touched them, and consequently the most of them were lost. A Mr. McLaughlin came over to us later, and some of them he secured and put on for us at 3 cents a piece. This was perhaps a little dear, but many, knowing they were growing unprofitable trees, were glad of his assistance at any cost. He is a good man, knows his business, and while we are not able to see yet whether his scions are true to name, we believe him to be thoroughly honest. I am told that he put on some 30,000 scions. That ought to effect much good. The season was too far advanced when he came, and, therefore, he could not get all around.

There can be no doubt but that pruning is an important matter in orcharding. An amateur will never cut out enough wood. All our Island trees are not half pruned. We expected the services of an experienced man to show us how to prune and leave us his own work for an object lesson. We were again disappointed.

As to packing fruit, this year there is little or none of it to be done. The Lake Huron, our first cold storage (and dear only knows what kind of cold storage) steamer this season sailed for England last week. She took only about 100 bbls. of apples, shipped by Mr. Sharp, our Vice-President. The government man, we don't know what he is doing at all, or if he is in the Province. At any rate, his mission was a frisco, and pity it was too, when the right man in right hands could have done so much. The moral is: keep politics a thousand miles away from experimental work, whether agricultural or horticultural, if you want to do anything serviceable.

Those of us who sprayed this year found the greatest possible benefit from it. Unfortunately we desisted too soon. Seeing the crop to be small, many let the last spraying slip, and but for that the result would have been perfect. The fruit, however, was comparatively clean and well-sized, the foliage bright and verdant till the frosts came. Henceforward everybody who wants a crop of good fruit will have to get his pump out in the early spring, and follow the spraying calendar to the letter till the end of the season. This is the only law to follow for success. It is a hard enough law, but it is imperative. *Dura lex sed lex.*

With the next a good year, the fruit industry will go on here with leaps and bounds. Many good orchards are being planted out; the people are caring for

those planted out better; all are getting a more intelligent knowledge of horticulture through your excellent publications and the Fruit Growers' Associations, and now all we want is capable and honest nurserymen to fill the growing orders. Unfortunately Prince Edward Island, which ought to raise at least its own trees, is deficient in thoroughly equipped nurseries.

A. E. BURKE.

Alberton, Oct. 27, 1899.

SAN JOSE SCALE.

A MEETING of prominent fruit growers was held at Grimsby, on Friday evening, 27th October, 1899, to discuss the report of the San Jose Scale Commission.

A communication was read from Mr. Owen of Catawba Island who has had much experience in treating trees for San Jose Scale with whale oil soap, two pounds to the gallon. This he said could be applied in the winter to trees that are hardy, but not to peach trees, which must be treated just before the buds open in the spring.

One hundred and fifty trees per day is all that can be properly treated with the whale oil soap. Every part of the tree must be thoroughly drenched.

Even eggs of insects can be largely destroyed by applications of whale oil, and the leaf curl of the peach is totally destroyed by its use.

Previous to spraying, the orchard must be thoroughly pruned as a preparation. The trees must be severely cut back; all dead and weakly limbs, and superfluous wood must be removed, and in cases of badly affected trees leave only four or five feet of the limbs should remain.

Insect parasites are not to be relied upon for the destruction of the scale so well as whale oil soap.

A communication was also read from Professor Webster, who says he attaches much importance to the application of whale oil soap. He has found that it so cleans up orchards that they are very much more vigorous and healthy, and able to throw off all fungous diseases. The result is so evident that it would pay to apply the whale oil soap even if there were no San Jose Scale.

To entirely destroy the scale, it might be necessary to continue the treatment for several years.

He also states that one hundred and fifty to two hundred trees per day is all that can be treated in a day with a good pump with two lines of hose and two nozzels on each.

He also said that an ordinary tree will require 1½ gallons of the mixture, containing about three pounds of whale oil soap, at a cost of three cents a pound, or nine cents per tree for the soap alone.

After considerable discussion the following resolution was unanimously adopted:

"We desire to express our great satisfaction with the efforts made by the Department of Agriculture to destroy that most serious enemy of the fruit grower, the San Jose Scale. We regret exceedingly that any suspension of the working of the Act should have taken place thus allowing the pest to spread with great rapidity.

"In view of the uncertain results of the work of the Experiment Stations in the United States in the treatment of orchard trees with whale oil soap for the destruction of the scale, we recommend,

"That there be no relaxation of the inspection of orchards or of the destruction of infested trees, but that the work proceed with all vigor, while it is possible to prevent the spread of the pest;

"That in case of valuable orchard trees only exposed to infection, the owner have the choice of having his trees destroyed with compensation, or of having them treated for a certain length of time for the destruction of the insect, and in case of failure, of having them destroyed without compensation;

"That the owner of an infested orchard, who wishes to have exposed trees treated instead of destroying, be required to thoroughly prune the orchard trees exposed, in such a manner as may be required by the inspector, as a preparation for the spraying;

That all nursery stock be thoroughly fumigated with cyanide of potassium gas, under the eye of an inspector, before it is allowed to be sent out."

COW PEAS.

A ROTATION of cow peas and potatoes may be followed among the trees, while they are growing to bearing size.

We started the use of cow peas in one corner of the farm on a poor, thin, sandy field. It was so notoriously poor that the neighbors selected it as a place for burying their dead horses. Our first work was to chop this field up with the Cutaway harrow; it was covered with briers and dried mullein stalks. We applied at the rate of three hundred pounds of kainit and five hundred pounds of basic slag per acre. The same quantity of dissolved phosphate rock would have answered as well, except that the slag contains a large amount of lime, which we find very useful on poor thin soil that has been exhausted of organic matter. After Cutawaying this field, we broadcasted five pecks to the acre of Early Black cow peas, which were worked in with the Acme harrow; in August we cut a part of this growth and used the vines for mulching strawberries, but most of the growth was permitted to die down on the ground. A small amount of nitrate of soda applied to the cow peas will quicken up and improve their growth, but too much nitrogen would be unprofitable. The cow pea is one of those plants that absorb nitrogen from the air. My conviction is that when you sow this crop on land that is very rich, or where you use a large amount of nitrogen in your fertilizer, the plant will, from choice, take the nitrogen out of the soil, and will not prove so valuable as a soil improver. We are now raising the second crop of sweet corn after that crop of cow peas, and there is no question in my mind that the growth of vines was fully equal to twenty loads of stable manure per acre. Where the vines were worked into the ground the corn has a better color and is far better able to withstand the drouth. I have noticed both in corn and potatoes that where a thick mat of cow peas was turned into the ground the crop was far better able to withstand a drouth. In this respect I think green manures are superior to stable manures, as the latter appear to dry out more quickly and are not so useful for holding moisture. The objection to the cow pea is that it requires practically the whole season to make its best growth. I have, however, sown the peas after a crop of early potatoes and secured a fair growth before frost. We have also sown the cow peas among the currants, raspberries, and other bush fruits, with very fair results. The first sharp frost, however, kills the cow pea, and in order to make it most useful it is necessary to give it an entire summer for its growth, although it may be sown after such crops as early peas or lettuce. My advice, however, would be to use the cow pea on the poorer lands of the farm. Where one has considerable idle land, it would be safe to keep one-fifth of the farm constantly in cow peas, which would be a cheap and effective way of manuring. My advice would be to use at least seventy-five per cent. of the potash and the phosphoric acid on the cow pea crop, with perhaps a small amount of nitrogen. The balance of the fertilizer I would use on the crop following the cow pea, and in my experience potatoes or sweet corn have given the best results for this purpose.—Report Mass. Horticultural Society.

MELONS FOR MARKET.

LOCATION AND SOIL—While melons can be grown on almost any kind of soil, they cannot be grown successfully as a field crop unless the soil and location are favorable. Light, porous, sandy loam is the best and it must be full of humus, or decaying vegetable matter in some form, to secure the best results. Do not be afraid of the soil being too dry or too light, but in such cases use extra care to provide an abundant supply of humus in the soil, which is most easily supplied by plowing under a good clover sod; or the field can be sown with rye in September and the whole plowed under in the spring. The melon is a lover of drouth, and while it attains a large size in a moist season or situation it will not be of as good a quality. I always raised a big crop and the best melons when the season was hot and dry. The field should be high enough to secure good drainage, and if level is the most easily cultivated and least liable to washing by heavy rains.

Melons can be successfully grown on slopes, as this not only insures a good drainage in a wet season, but the crop grown on a southern slope is materially assisted in early ripening thereby. If the land is rather wet on level soil, it can be made better for melon culture by back-furrowing a strip of land two or three rods across. This will make the land slope gradually to both sides. If the soil is too heavy, melons can be grown successfully, for a small patch, by mixing sand in the soil in the hill, or by covering the surface of the hill before planting with about three inches of sand. Freshly broken woodland is very good for raising melons, as such soil is usually very light and full of leaf mold. I have also had great success in growing melons on land used for hog pasture, as the hogs had worked the ground well over, which made the soil loose and friable, and it was well enriched by their droppings.

Manuring.—When stable manure is used broadcast before it is well rotted it should be plowed under in the fall or early spring for best results, so that it may become well composted with the soil. I manure mostly in the hill, for a limited amount of manure will go farther that way and also give good results. Well rotted manure should be used for enriching the hills, as this tends to give the vines a strong, quick growth from the start, and it aids them in resisting the attacks of insects and ripening the crop early in the season. For very light, sandy soil I would advise using some rich manure, as of cattle, hog or poultry, for making the compost for the hills. As stated before, a good clover sod, plowed under, makes one of the best manures for the melon crop.

Preparing for Planting.—The ground should be thoroughly prepared. Where plowed in the fall, it should be plowed again in the spring and worked fine with the harrow and roller. If not fall-plowed it should be worked with a disc or common harrow until the surface is well pulverized for three or four inches. This is most important where coarse manure has been spread broadcast in the spring, for it will then be well mixed with the soil Then plow deep and finish again with the harrow and roller. Mark both ways, seven feet apart between the rows for watermelons and three and a half by seven for muskmelons. If hill manuring is necessary, dig a hole eight inches deep and eighteen inches across for each hill and put in one or two shovelfuls of manure.

Then some earth should be mixed with the manure, and the hill leveled with some fine soil so that it will be about two inches above the surface. On a large piece of ground of several acres the hills can be made more easily by plowing a deep furrow one way along the mark made by the marker. This will remove enough soil at the intersections for making the hills, if not, double furrows can be made, and a wagon load of manure following, the amount needed for each hill is placed at each intersec tion of the furrow and the crossmark.

Planting.—For success, seed must be pure. If several varieties are planted, each kind should have an alloted strip of ground with a driveway separating it from the rest. In this way melons will be pure and not mixed as when several kinds are planted without separation. If the soil is very loose and dry it should be packed with the foot. This is very important in a dry season, but if wet or heavy this is not necessary. Round off the hills so that it will be about a foot in diameter, then shove the spade down into the centre of the hill, slanting, so that it will be about two inches beneath the surface and cover an area of eight inches by the width of a spade. Now lift out the spade with the soil upon it, scatter from a dozen to twenty seeds over this inclined space and throw in the soil, patting it with the back of the spade. The seeds will be covered from one and a half to two inches deep. This is the best method I have ever tried for planting melon seeds, for some of the seeds are sure to grow, whether the season be wet or dry, and if the first plants are spoiled by insects, more will appear in a few days. Melon seeds should never be planted immediately after a rain, as the soil will bake and form a crust. Where it is desired to prolong the ripening season of some early melons, successive plantings should be made every two weeks until the middle of June. In some seasons this late planting will be cut off by frosts in the early fall, but, as a general rule, in two seasons out of three, it will produce a good crop.

Picking and Marketing.—Watermelons should not be picked until ripe. Picking green melons is both a net loss to the grower and spoils further sales. It is better to be patient and leave the fruit on the vines until they are ripe. Let your competitor sell the green melons, and keep your reputation up for growing good, sweet-flavored and large sized melons; for then your selling is half done.

To be able to tell when a melon is ripe requires close observation and some experience. I will give some of the indications I use in telling this, but it must be borne in mind that not all of them are always present in every melon, and there is also a difference in the appearance of different varieties, and then, also, the indications may vary in different seasons. Note carefully the sound, color and stem of the melon. When struck lightly a ripe melon sounds somewhat dull, as your boot does when tapped lightly with the fingers. Another test is to press on the melon with the thumb; if it is unripe the rind will be soft, if ripe the rind will be hard. Pressing lightly with the palm of the hand is another test; if ripe it will yield slightly to the pressure and a sharp cracking of the flesh is heard. Melons turned yellow on the under side are usually ripe. When the little curl at the stem of the melon is dry, it sometimes indicates ripeness, but not always. The color of the melon should be carefully noted. When the color turns dull and roseated on the top of the melon, it is surely ripe. The color is always glossy on a green melon.

Melons should be picked in the morning when they are cool and before the sun has made them warm, for they can then be kept longer and in better condition.

In marketing melons I have found it the best method to sell to the retail dealer. If the melons are warranted to him to be good and ripe, and he can rely on the grower to replace them if green or bad, he will be a staunch friend of the grower. Always patronize home industry instead of sending your product away to some distant wholesaler, for you run the risk, after paying the freight, of getting some of your shipments classed as bad and in a long run losing a good share of your expected profits. It also gives your home dealer an opportunity to dispose of some of his goods in trade for melons, as the grower can conveniently take such goods in exchange as he has present need of.—Rept. Minn. Hort. Soc.

THE ABUNDANCE PLUM.

UT of the great company of plums the public has sorted the two Japs, Abundance and Burbank, as some one neatly puts it. There may be nothing specially new to tell about these, yet there are two interesting items which a Country Gentleman correspondent says he has never seen in print concerning the Abundance plum, and these he gives as follows:

The first is that the crop does not all mature at once. In fact, in looking over the tree while the fruit is yet green it will be found that the plums vary greatly in size. This seems to be a difference in age because it is maintained to the full period of maturity. Hence the crop of a single tree never ripens all at once or anything like it. While some of the specimens are fully ripe others will be hard, green and not even grown out. While this may be an objection to it as a market variety, because of the increased labor of gathering, it certainly is a most valuable feature in the family orchard or garden where the entire crop is not wanted at once.

Another point which, if it has been noted, has escaped my attention is that in order to secure the best flavor and the highest coloring in the Abundance plum it must be picked early and ripened in the house like a Bartlett pear. If allowed to become soft and fully colored on the tree, half the flavor is gone, and the bees and wasps will often be found garnering the little which remains. It may be gathered while yet green, and if placed in a dark drawer it will color up beautifully with a delicate bloom and reward you with a flavor of surprising excellence. It is very juicy, sweet and rich, and I can compare them with nothing so well as the old genuine Green Gage, which I have always regarded as the standard for flavor and quality. While the flesh does not part so readily from the stone, which is very small, it does not cling to it as tenaciously as others of this species. Like the Green Gage, it is breaking and buttery in the mouth. And I have often seen specimens of that grand old variety ripened in the full sun that were colored much like the Abundance. In the Abundance I think we have its full cousin at least as to flavor, while the brilliant coloring is more attractive, and its general vigor and productiveness make it more desirable.

The little knight of the crescent calls around on time, of course, and leaves his well-known autograph. But that is the last of it for this thick skinned Japanese member of the Prunus family. The plums grow right along and ripen up sound and perfect without either eggs or larvæ of any foe. Why not plant the Abundance plum?

Flower Garden and Lawn.

A STRAW may show which way the wind blows, so little pointers indicate character. An untidy yard about a home indicates a slovenly habit of the owner, while well kept grass and tastefully grouped trees and shrubs reveal the abode of cultured taste. The architecture of a house is an important feature, but in my opinion, better a plain house, devoid of Corinthian, Doric or Ionic touches and showing neither Elizabethian or Queen Anne style of architecture, than a lawn of no interesting features. The setting of the home on a velvety lawn, among grand old trees and shrubs with pleasant views, will far outvalue the architectural features of a house.

We in Ontario, especially the middle classes, are away behind in this study, and it is time that an interest was awakened in it. Here is work for our Horticultural societies, and we hope they will in time prove leading spirits in all that is good in horticulture and landscape art.

First in importance is a first class lawn. This is the back ground of the picture and the very making of the place. It should be of as great breadth as possible, and not cut up with roadways, flower beds or ribbon beds. Let the paths and drives circle about the lawn, and be half concealed by clumps of shrubbery, and not make one's eyes sore with a dreary waste of gravel right in front of the best windows. Nor is a bed of scarlet geraniums in good taste in the middle of a good lawn. They should be rather on the side or the rear, half hidden among green trees. Indeed, a flower bed of any kind is not in place on a front lawn, for during more than half the year it is bare earth, a mere blot on the landscape.

Prof. Bailey of Cornell University, gives some good hints in Bulletin 121. He says, "The trouble with home grounds is not so much that there is too little planting of trees and shrubs, but that this planting is meaningless. Every yard should be a picture. That is, the area should be set off from every other area, and it should have such a character that the observer catches its entire effect and purpose without stopping to analyze its parts. For myself, I had rather have a bare and open pasture than the common type of yard with bushes and trees scattered promiscuously over the area. Such a yard has no purpose, no central idea. It shows plainly that the planter had no constructive conception, no grasp of any design, and no appreciation of the fundamental elements of the beauty of landscape. Its only merit is the fact that trees and shrubs have been planted; and this, to most minds, comprises the essence and sum of the orna-

mentation of grounds. Every tree and bush is an individual, alone, unattended, disconnected from its environments, and therefore meaningless. And, if a landscape is a picture, it must have a canvas. This canvas is the green-sward. Upon this, the artist paints with tree and bush and flower, the same as the painter does upon the canvas with brush and pigments. The opportunity for artistic composition, and structure is nowhere so great as in the landscape garden, because no other art has such a limitless field for the expression of its emotions. It is not strange, if this be true, that there have been few great landscape gardeners, and that, falling short of art, the landscape gardener too often works in the sphere of the artisan. There can be no rules for landscape gardening, any more than there can be for painting or sculpture. The operator may be taught how to hold the brush, or strike the chisel, or plant the tree, but he remains an operator; the art is intellectual and emotional and will not confine itself in precepts.

The making of a good and spacious lawn, then is the very first practical consideration of a landscape garden. This provided, the gardener conceives what is the dominant and central feature in the place, and then throws the entire premises into subordination with this feature. In home grounds this central feature is the house. To scatter trees and bushes over the area defeats the fundamental purpose of the place, the purpose to make every part of the grounds lead up to the home and to accentuate its homelikeness. Keep the centre of the place open. Plant the borders. Avoid all disconnected, cheap, patchy and curious effects.

Planting to increase the apparent size of a lawn is also a worthy object. This may be done in several ways. The trees and shrubs should be so placed so to hide the boundary fences and unsightly buildings, and at the same time leave in full view any interesting object, especially such as a lake or mountain, a park or distant landscape. Then trees should not be out of harmony with the surroundings. An immense Norway spruce, beautiful as it may be, is out of keeping when it almost fills a small lawn. A heavy belt of dark hued evergreens makes a small lawn look shut-in and contracted, when, if lighted up with a quantity of light green deciduous trees and shrubs, the effect would be quite different.

I am not a lover of the old geometrical square and rule gardens, where all lines are at straight lines, and all is stiff conventionality. I believe we can find harmony in variety, and beauty in artful disarrangement. I dislike the straight walk from the gate to the front door, and prefer to come in at a corner and approach the door along a path half screened by trees. I do not like to see a yard like a grocer's balance, where, if the owner has a cut-leaved weeping birch on one side, he must always plant another opposite to balance up; nor a front yard like one I once saw where all the trees and shrubs in the front lawn were disposed in four straight rows like an apple orchard. I like to see groups of such shrubs as will harmonize placed here and there, and thickets planted near the gates, and along the boundaries. For this purpose both trees and shrubs must be employed, the former to give height and breadth to the mass, and the latter to fill in and give completeness to the base and nearer portions.

The frequent practice of shearing shrubbery and trees is, as a rule, to be condemned. Hamilton shows quite a number of remarkable instances of these

deformities. The gardener has been trying to improve on the master who gave the trees their forms, and to my mind he has not improved them. Instances can be seen at many of the railway station gardens of shrubs and trees thus sheared, and I remember seeing many years ago near Hamilton city, a whole yard full of sheared Norway spruce, looking like so many barrels set down in the yard and painted green. True, some very curious gardens of this kind are to be seen in Europe, which are marvels to behold, but their beauty is only in their queerness.

To show that I am not alone in this, I quote from Bailey. He says: "The pruning knife is the most inveterate enemy of shrubbery. We have not the slightest objection to the shearing of trees. The only trouble is in calling the practice art, and in putting the trees where people must see them. If the operator simply calls the business shearing, and puts the things where he and others who like them may see them, objection could not be raised. Some persons like painted stones, others like iron bulldogs in the front yard, and the word "welcome" worked into the door mat, and others like barbed trees. So long as these likes are purely personal, it would seem to be better taste to put such curiosities in the back yard where the owner may admire them without molestation."

With regard to the massing of shrubs, he says, "Be sure that the main plantings are made up of hardy and vigorous species, and have lots of them. Then get the things which you like. I like bull-thistles, lilacs, hollyhocks, burdocks, rhubarb, dogwoods, spireas, elders and such careless things. But others have better tastes. There is endless merit in the choice of species, but the point I want to emphasize is that the arrangement or disposition of the plants is far more important than the kinds. In most home grounds in this state, the body of the planting may be very effectively made by the use of bushes taken from adjacent woods and fields. The masses may then be enlivened by the addition here and there of cultivated bushes, and the planting of flowers and herbs about the borders. It is not essential that one know the names of these wild bushes, although a knowledge of their botanical features will add greatly to the pleasure of growing them. Neither will they look common when transferred to the lawn. There are very few people who know even the commonest wild bushes intimately, and the bushes change so much in looks when removed to rich grounds that few people recognize them. I have a mass of shrubbery which is much admired, and visitors are always asking me what the bushes are; yet I dug the roots in the neighborhood.

A word should be said about just how to make a group. Dig up the entire area. Never set the bushes in holes dug in the sod. Spade up the ground, set the bushes thick, hoe them, and then let them go. If you do not like the bare earth between them, sow in the seeds of hardy annual flowers, like phlox, petunia, alyssum and pinks. The person who plants his shrubs in holes in the sward does not seriously mean to make any foliage mass, and it is likely that he does not know what relation the border mass has to artistic planting. I have said to plant the bushes thick. This for quick effect. It is an easy matter to thin the plantation if it becomes too thick. I should generally plant all common bushes as close as two feet each way, especially if I get most of them from the fields so that I do not have to buy them."

What trees shall I plant, is a question so often asked, we must give a few hints in reply. For clumps and thickets where you wish to hide any ugly barn, or other objectionable features, nothing is better than the well-known Norway Spruce, Hard Maple, or if you choose some of the quick growing willows or poplars. For thickening up a border, a great variety of trees and shrubs can be added, and at little expense, if you will go to the country and ask permission to take home some of the many excellent natives that grow so freely in our woods. You will find the White pine, Hemlock spruce, White spruce and Arbor Vitæ very common along the Niagara Escarpment, and of deciduous trees, not only the ones referred to, but also fine young elms, beeches, oaks, basswoods, ashes, hickories, birches and poplars. Besides these, you will find some interesting trees for special planting, as, for example, Cornus florida, with its showy dress of large snow white flowers appearing about the first of June, and its shrubby sister Cornus stolonifera, with its bright red twigs, beautiful even in winter.

Another striking native is Platanus occidentalis, commonly called the Buttonwood, with its peculiar bark of white and drab. Another, a smaller tree, is Amelanchier Canadensis, or Juneberry, with early white blossoms and edible fruit. Liriodendron tulipera, called the Tulip tree from the shape of its flowers, is also a native, not uncommon in the Niagara district. It grows to a height of upwards of a hundred feet. Sambucus pubens, the Red berried elder, is beautiful in fruit and well deserves a place in the outside boundary of the lawn.

For single specimens there are a good many beautiful trees, such as Wier's Cut Leaved maple, Scarlet oak, Catalpa speciosa, Cut leaved Weeping birch, Copper beech, Purple birch, Maiden Hair tree.

Among the evergreens, the dwarf Arbor Vitæs are very good, as Thuja siberica, globosa, Tom Thumb ; but for single specimens in a small yard, we know of none prettier than pyramidalis, a beautiful upright grower which needs no pruning to keep its pyramidal form. It is beautifully adapted to prominent positions near the house, at the corner of a path or near the porch. Similar use can be made of some of the upright Junipers, *e.g.*, those known as the Swedish and Irish Junipers. Juniperus Virginiana is pretty for its berries, but the color is almost too dark a green to suit me.

Pinus Cembra, a Swiss pine, is a pretty, slow-growing conifer for the small lawn.

Of the spruces, I believe I would prefer our own White spruce, Picea alba, to the grand, but too rapid growing and less durable Picea excelsa (Norway Spruce, which is too rampant for small yards, and yet we often see these giant plants as a hedge for small lawns, close along a narrow walk, by people who never realize that it will grow to an enormous size, and unless cut back annually, cover an area on the ground of thirty feet in diameter.

Of exotic shrubs valuable for Ontario, the following are hardy in the latitude of Hamilton, *Viburnum opulus*, *Syringa vulgaris*, *Persica* and others, *Philadelphus Coronarius* (Mock Orange), *Rhus Cotinus* (Purple Fringe). The Spiraeas, *Diervilla Japonica Weigelia rosea Prunus nana* (Flowering almond), *Forsythia*, *Hydrangea paniculata grandiflora*, Paul's Double Red and White Thorn, *Prunus Pissardii* (Purple leaved plum), *Lonicera Tartarica* (Tartarian honeysuckle), *Symphoricarpus racemosus* (Snowberry), *Viburnum plicatum* (Japan Snow Ball), *Ligustrum vulgare* (privet), *Mahonia aquifolia* (Dwarf holly evergreen), *Pyrus*

Japonica (Japan Flowering Quince), *Caragana arborescens* (Siberia Pea tree), *Cotoneaster Vulgaris.*

Of climbers, Tendril, *Ampelopsis quinquefolia* (Virginia Creeper), *Ampelopsis Veitchii* (Japan Ivy), *Akebia quinata, Clematis Virginiana, Clematis Coccinea, Clematis Jackmani.*

Twiners, *Lonicera Halleana, Celastrus scandens.*

I have thus indicated several lines of study which each one of us who has a lawn, large or small, may pursue with absorbing interest and delight. There will be no money reward, but the health and the pleasure derived, and the increased vitality and inspiration for other duties accruing to you in thus coming in touch with some of Nature's pets, will be a richer reward than any one of you has ever imagined, especially if he has been thus far solely occupied with the hard lines of business life.

L. WOOLVERTON.

Before Hamilton Horticultural Society.

THE BABY PRIMROSE.

FIG. 1707.—PRIMULA FORBESI.

THE primrose genus furnishes several of the most charming and useful house and garden plants in cultivation. In its various species, which are widely distributed throughout both hemispheres, there is a diversity of habits and growth hardly excelled in any other genus. While some of the best known species have been in cultivation for centuries, new ones are discovered and introduced from time to time. The latest of them, the *Primula Forbesi*, or Baby Primrose, is shown in the accompanying illustration.

Its blossoms are very dainty and graceful, not quite one-half inch in diameter, and of a pleasing rose-color, with eye or center of pale gold-yellow. They are borne in tiers on erect and delicate stems ten to twelve inches long, and remain in bloom for several weeks, fresh buds opening from day to day. For cut flowers they are particularly valuable on account of their great staying qualities. The plants begin to bloom when quite small and continue to throw up dozens of flower spikes from a dense clump of foliage. The plant requires about the same treatment as the Chinese primrose and will thrive in any cool house or ordinary window garden. Those who have grown this new plant are enthusiastic in praise of its good qualities, and consider it one of the most desirable introductions for many years. — Floral Guide.

CALADIUM.

FIG. 1708.—CALADIUM.

SIR,—As a subscriber to the HORTICULTURIST I am sending you a view of a Caladium bed containing eight plants. My admiration for this plant is my reason for sending it. As a lawn plant it has, in my judgment, no equal. Easy to raise, free from enemies, requiring little care, it recommends itself to the florist, and should be better known and appreciated. The plants were placed in a bed situated in the sun, about the middle of June and attained a height of six feet. The bed was given a heavy mulch of leaf mold in July and watered about three times every week. Had the plants been placed out a month earlier the growth would have been much greater. Difficulty is experienced in keeping the bulbs over winter, but even counting the expense of buying plants every year one is well repaid. On large grounds some splendid effects can be had by grouping Caladiums with other plants. Before the photo was taken Jack Frost had paid us a visit and wilted the plants.

E. A. MCCLUNGHAN.

Woodstock.

THE BRIDGE AT EDGEMOOR.

Fig 1709.—The Bridge at Edgemoor.

WATER always forms a charming feature of a park or private pleasure grounds; it gives such variety and rest to the landscape and affords such opportunities for landscape art. We take from Gardening a fine view of a bridge at "Edgemoor," the beautiful summer home at Oconomowoc, Wis., of Mr. John Dupee. It is an instructive picture in showing what may be done in grounds where sufficient water is obtainable, or where a stream naturally flows through it. Too often these opportunities are overlooked, and small streams that might be made attractive are allowed to remain with unsightly banks. Fortunately for that part of Lake La Belle, Mr. Dupee is a man of taste, and an enthusiastic lover of all matters pertaining to ornamental horticulture. The luxuriant growth of the cut leaved willow in the centre, show unusually intelligent care and attention.

We should have more of this kind of planting. Many large estates possess considerably area of low lands requiring drainage, where a wide ditch would not only reclaim considerable land, but could be so planted as to become quite ornamental. The spot here illustrated, before Mr. Dupee took hold of it, was only unattractive, but intelligent application of time and money has produced a great change.

FLOWERING SHRUBS FOR LAWNS.

FIG. 1710.—WIGELIA VARIEGATA (SPRAY).

THE introduction to the notice of horticulturists of some that are now considered as being amongst our commonest flowering shrubs, dates as far back as the 16th century; the *Philadelphus coronarius*, better known as Mock Orange is among the first spoken of in horticultural records, being brought from South Europe about the year 1596. The *Hibiscus Syriacus*, or as sometimes erroneously termed *Althea Syriacus*, was introduced from Syria at about the same period; the many beautiful varieties of this plant, with their glossy green foliage and showy flowers, that brighten up our lawns during the scorching hot days of August when most other shrubs look bare and desolate, are, with few exceptions, hybrids raised from this variety. The small but free flowering *Syringa Persica*, or Persian lilac, is supposed to have been brought from Persia about the year 1640. By some authorities *Syringa Persica* and *Syringa Chinensis* are thought to be identical with each other, the latter being introduced from China about a century ago. Notwithstanding the lapse of centuries intervening since these varieties were introduced, they still hold a place amongst the many beautiful varieties of these useful shrubs that have been more recently introduced. The lovely Japanese and Chinese lilacs as well as the beautiful hybrids brought into notice by British and Continental growers, with their showy spikes of single and double flowers varying in color from pure white to deep purple, combined with their compact habit recommend them strongly as being more suitable for ornamenting lawns than some of the older varieties; many of these latter, being of a more loose, straggling growth are not as well suited for planting on small lawns.

The *Berberis Canadensis* and *Diervilla* or *Wigelia Canadensis* were introduced about 1796, the *Lonicera tartarica*, better known perhaps as the Tartarian Honeysuckle, was brought into notice at about the same date. The present almost completed century has been very productive in adding to the now almost innumerable list of flowering shrubs; the gradual opening up of comparatively new countries, principally in Asia, having given us by far the greater proportion of the new varieties now seen growing on lawns. China, Japan, Burmah, the Himalaya mountains, as well as the states of Nepaul and Bhotan adjoining Northern India have contributed the most varieties, and in some cases the entire genus of some that are now considered almost common varieties, such as the *Hydrangea paniculata grandi-*

FIG 1711.—SPRAY OF SPIREA'S DOUGLASII AND BUMALDA.

flora, *Forsythia*, *Deutzia*, *Spirea*, *Tamarix*, *Viburnums*, *Exochorda grandiflora* and many others almost too numerous to mention. Many hybrids of these plants have also been added to the list by enterprising nurserymen and florists. The colder latitudes of Siberia and Northern Europe have contributed a few varieties worthy of notice, amongst others being the pretty, sweetly perfumed Daphnes, most of which flower very early in spring, their dwarf and unobtrusive habit making them particularly suitable for planting on lawns. The *Halesia tetraptera* or Snowdrop tree is a native of N. America, and is quite hardy, its pretty silvery white bell-like flowers, which have given it the name of Silver Bell or Snowdrop tree, are produced in May or June before the leaves appear, giving the plant a novel and unique appearance. The variety *Halesia hispida* is a very pretty and more recent introduction from Japan, but does not appear to be as acceptable as the native variety. Some of the hardy Azaleas, known as the Ghent or American Azaleas, have been successfully grown in this locality, such as *Azalea viscosa* and *A. nudiflora*, but the *Azalea mollis* of Chinese and Japanese origin, as well as *Azalea pontica* from the Caucasus, including hybrids of these varieties, which are classed as being hardy in this section, have not proved to be so, partaking as they do, both in flower and habit, more of the nature of those gorgeously beautiful Asiatic shrubs, the *Rhododendrons*, which are seen in such numbers on lawns, more particularly in the south and west of England as well as in Southern Europe. It is to be regretted that these latter are not entirely hardy here; even in England, severe winters and extreme drought in summer often destroys whole beds of these much admired plants.

Mention might be made of many more species and varieties of flowering shrubs, many of them being better adapted for planting in large shrubberies, or margins of plantations, or to hide some objectionable feature of the landscape than for planting on lawns for decorative purposes. The planting of shrubs is of importance especially as to the requirements of position and surroundings; the method of actual planting being the same as applied to all small trees and shrubs requires no explanation, as these particulars have been so often given in horticultural journals.

Sufficient attention is not often given to these plants regarding position and surroundings, as with few exceptions they require an open sunny situation, with a free circulation of air, without being fully exposed to sweeping winds; the partial shade of a tree or building

during the scorching midday sun, would probably benefit some varieties such as the Japanese Spireas, and a few others that flower during the hot days of July; care must be taken however to keep the plants a sufficient distance from these, so that the plants are exposed to the sun and air during the greater part of the day. The height and habit of growth of the plants must be taken into consideration as well as the probable growth of trees and shrubs growing near to them, and the suitability of the plant as to color, so as to have a variety of color and form; nor must we forget the habit of growth of the plant as adapted for the position selected, for some comparatively dwarf growing shrubs have a loose spreading habit, such as Forsythia, spirea van Houttii, S. lanceolata, and others of similar growth which require more space to produce the long arching branches that make these Spireas so attractive when laden with their hawthorn like flowers in early summer. Most varieties of the Deutzia, Prunus or double flowering Almonds, Spirea prunifolia and S. bumaldii and a few others are of more compact and upright growth, requiring less space than the stronger growing varieties, the dwarf growing *Deutzia gracilis*, *D. parviflora* and the newly introduced variety *Deutzia Lemoinei* are specially adapted for planting on small lawns, where the space is limited, or near the edge of walks.

Pruning flowering shrubs is a very important point in the successful growth of these plants, so as to produce a natural looking shapely plant and still leave sufficient of the young growth, as nearly all flowering shrubs produce their wealth of bloom on the growth of the preceding season; there are a few exceptions to this rule, the Hydrangea

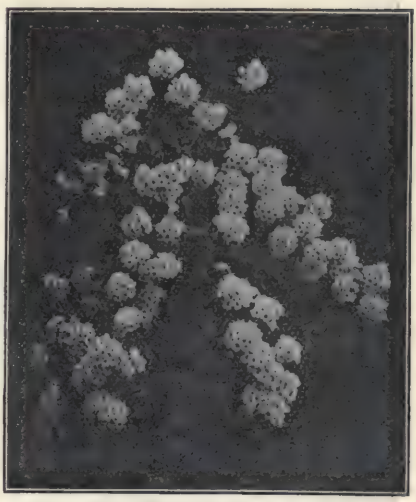

FIG. 1712.—SPRAY OF "SPIREA VAN HOUTII."

paniculata grandiflora being one of them. This plant requires severe fall or winter pruning, cutting back the young growth to within about an inch or two of the older growth of the plant.

The far too common method of clipping, or to use the proper term, mutilation of these plants cannot be too strongly condemned. This unnatural and disfiguring process usually takes place annually in July or August, before the plants have completed the season's growth, and it entirely destroys the young growth necessary to produce the bloom of the following season. Many of the most beautiful of our flowering shrubs can be seen on lawns entirely ruined by this mistaken system of clipping; unsightly looking plants of the Forsythias, Weigelias, Spireas, and even the double flowering Spirea prunifolia can be seen, clipped of all the growth so necessary to produce the beautiful minaret like spikes of snow-white blossoms, that make this plant so valuable in spring and early summer for lawn decoration. The best time for pruning

FIG. 1713.—Centre Spray DEUTZIA "PRIDE OF ROCHESTER."

flowering shrubs is late in autumn or early winter; a sharp pruning-knife, or a small pair of grape pruning-scissors is all that is necessary for this purpose. The method usually adopted by successful growers of these plants is termed the "thinning back" or "thinning out" system, which is carried out practically by cutting out the most prominent branches or shoots, that project beyond the tips of the growth that is to form the general outline of the plant, so that when the pruning is finished it leaves the plant of a natural looking uniform shape. The branches or shoots should be severed at a point near to or below the base of the young growth it is necessary to remove, thinning out all parts of the plant equally, so as to leave the plant evenly balanced, and natural looking.

A correct eye for form, and a little study of the growth necesary to give the best results to produce bloom the following season, will soon enable anyone to become proficient in what is sometimes thought to be a difficult operation. Many varieties of flowering shrubs can be kept in good shape and a supply of cut flowers obtained from them in summer for indoor decoration, by judiciously cutting out the most prominent branches or spikes of flowers; this can be easily done without any injury to the plant, if care is taken not to cut too much of the plant away in any one particular place.

To be successful in growing flowering shrubs, this system of pruning, as explained, must be commenced when the plants are young, as when once they are allowed to get overgrown and out of shape, it is difficult to successfully bring them into proper shape, to produce a supply of flowers.

The selection of flowering shrubs for small lawns is often a difficult matter, not only from the large variety there is to select from, but for other reasons. The highly colored, deceptive plates sometimes seen in catalogues and cheap horticultural papers, as well as the glowing and sometimes inaccurate descriptions given of plants, are some of the difficulties encountered in making a selection; the omission, in some cases, altogether of any particulars as to the size and habit of the plant does not improve matters in this direction. It is pleasing to note however, that reproductions from actual photographs of plants and flowers are being much more generally used to illustrate catalogues and horticultural periodicals. These, if well executed, give faithful representations of the subject they are intended to illustrate; at least, so far as form of flower or habit of plant is concerned. Their deficiency in coloring is at any rate not

deceptive; this defect can be much more easily described than the form or habit of growth of a plant, the latter being far more essential to success than high colored illustrations which often cause disappointment and failure. The pamphlet recently issued by the Central Experimental Farm, Ottawa, and which was mentioned in the October number of the HORTICULTURIST, is a valuable paper, giving as it does reliable information in many ways as to the growth and hardiness of a large number of trees and shrubs, being of especial value to localities where the winters are prolonged and severe.

WM. HUNT.

Before Hamilton Horticultural Society.

ROSES—CHOICE OF VARIETIES, AND WINTER CARE.

"TEA" OR EVERBLOOMING MONTHLIES.

IT must be distinctly understood that this variety is very tender, requiring, probably, a little more care and attention than the amateur feels disposed to bestow upon them; although they will amply repay for the time and the labor that is necessary for their protection through the winter months.

The following varieties I have grown and wintered out-doors: "Catharine Mermet," "Madam Cochet," "Jean Ducher," "Marie Van Houtte," "Madame Lambard."

If any readers of this Journal are desirous of cultivating the "Tea" rose, and will adopt the following method of planting and protecting, I venture to say they will be well rewarded.

In the first place, secure good, strong two-year-old plants (I prefer budded stock), select a sheltered situation facing south, and in planting, see that the bud (or the place where the bud is inserted in the Manetti stock) is about three inches under the ground. If any pruning is required, do it sparingly. Towards the end of November, or as soon as winter sets in, tie up the bush to a stake and bank up the roots with cow manure and leaves; take a nail-keg, knock out the bottom, and bore three or four holes in the side, about midway, for ventilation; place it so that the bush is in the centre and fill in thoroughly with dried leaves. Do not pack too tightly, or mildew will follow; let the stake project above the keg from four to six inches, and this will act as a centre pole. Then take a piece of factory, or anything of that nature, cover the keg so as to assume the shape of a military tent, and tack the factory (or whatever is used) to the top edge of the keg, so as to be thoroughly waterproof.

It must be thoroughly understood that the secret of protecting "Tea" roses is to keep them dry, especially towards spring. Another point, which cannot be too strongly emphasized, is this: it is the warm days and freezing nights in the spring that prove so disastrous to the rose; hence the necessity of keeping them covered until all appearance of frost is gone.

In the list of dark Hybrids, which you kindly published last month, I omitted to mention "Pierre Notting" and "Alfred Colomb." Although old roses, for color and fragrance I doubt very much whether any rose of recent production is superior to the above named.

J. G. JACKSON.

Port Hope.

HYACINTHS.

JUDGING from my own experience and the experience of others I believe the Hyacinth to be about the best bulb for winter window culture, and among the different classes of Hyacinths none are more fitting for that purpose than the sweet and graceful Roman varieties. The bulbs of these are somewhat smaller than those other kinds, yet their flowers are produced in greater abundance, and last much longer than those of other sorts. Bulbs planted in September or October ought to come into bloom by Christmas, and nothing is daintier to give to one's friend than they, either cut or still on

FIG. 1714.—HYACINTHS.

the plant. The bulbs delight in a rich soil, composed mainly of thoroughly decayed manure, garden and woods mold; also a judicious supply of moisture—in the air rather than at their roots—and a temperature of about sixty or sixty-five degrees. They do not exact any sunshine to speak of, and will bloom very successfully in a north window. It has been my custom for years to plant only one bulb of these (and all other Hyacinths except the Grape) in one jar, although this is not absolutely requirable. A four-inch jar about suits an ordinary-sized bulb; larger named sorts will require a receptacle a size or two larger, while three bulbs of the little Grape Hyacinths may be set in a four-inch pot. I generally surround each bulb with coarse sand to ward off decay.

After introducing my bulbs to their dark box down cellar I let them remain there from six weeks to three months, and find that those left longest are much the finest, all told. Let me say if all bulb growers would make this all important fact their own and act upon it, there would not be one-half so many failures in making these bulbs come into successful flower. Experience, that hardiest yet kindest of teachers, has convinced me of that.

Among the named single Dutch Hyacinths I can unhesitatingly recommend the following: Amy, medium spike of rich carmine flowers, one of the best; Gertrude, fine spike of rose bells slightly with lilac, has carmine stripe on each petal; Gigantea, immense truss of delicate rose; La Reine des Jacinthes, rich, glowing, dark red; La Grandesse, dense spike of snowy blossoms; Mimosa, dark rich blue, nearly purple; Ida, fine canary yellow; L'Amie du Coeur, fine spike of mauve-lilac blossoms.

I have said nothing about the double named sorts. Perhaps it is just as well, as I never feel safe in recommending them to those who are beginning bulb culture.—Benj. B. Keech, Park's Floral Guide.

THE SNOWDROPS.

SNOWDROPS are one of the easiest bulbs to grow. All they require is to be planted and left alone; they will grow stronger from year to year and make a fine show if planted in a mass in some corner of the lawn or amongst deciduous shrubs where hardly anything else will grow. They are also charming if planted near the house where they can be seen from the windows; in this way they can be associated with other bulbs that flower about the same time, namely the winter aconite, *Scilla siberica*, crocus and chionodoxas or planted in the hyacinth or tulip beds; in this way beds in the vicinity of the house are kept gay a longer period, and the foliage of the snowdrops makes a nice groundwork for the hyacinths or tulips. But these early spring flowers are not much seen in gardens. They are noticeably absent from the grounds of the country homes of those who live in the city in winter, but the gardener in charge should see that there is a patch of snowdrops, for in March, when the greenhouses are full of bedding plants and flowers are scarce, a colony of snowdrops will help to swell the flower basket and may be more prized than the choicest rose or orchid the greenhouse can produce.—American Florist.

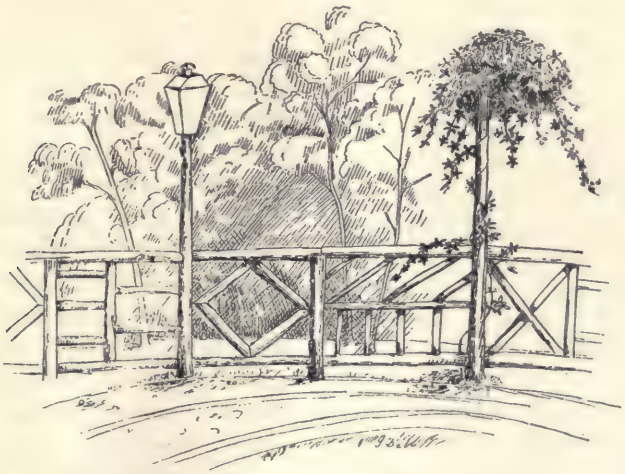

FIG. 1715.—RUSTIC LAMP POSTS AND TRELLISES.

RUSTIC LAMP POSTS AND TRELLISES.—In Tuxedo Park, along the drive bordering the lake, is a handsome rustic fence, of which not the least interesting feature is that at appropriate distances the posts of the fence extend above the rail several feet to form lamp rests. Our illustration presents a modified form of this method, showing how other posts may be run up and used as trellises for clematis and other climbing vines. We don't believe in fences except as safeguards against positive danger or real encroachment, and where necessary we do believe in making them as useful or beautiful, or both, as the case will permit.—American Gardening.

Our Affiliated Societies.

THORNBURY.—At a meeting of the Thornbury Horticultural Society held at the office of Dr. Hurlburt, on Friday evening last, it was resolved to expend the surplus Government grant in purchasing trees and flower bulbs to be delivered to the members at once.

It was moved by Mr. M. Snetsinger, seconded by C. W. Hartman, that having examined the results of the spraying experiments under direction of Mr. Orr, Superintendent, we heartily endorse the practice of the department in conducting systematic experiments. The results in Mr. George Lambert's orchard shows conclusively that it is the only known method securing sound large fruit and of keeping the trees healthy.

In moving the resolution Mr. Snetsinger stated that although an extensive dealer in apples for many years, he was never until this year thoroughly convinced of the immense value of spraying. This year he had purchased the crop of apples from Mr. John Mitchell at the experimental station, where systematic spraying had been conducted for some years, and the fruit was so perfect that it could be packed without culling.

LINDSAY.—This Society has already made up the following list of plants and bulbs to be given each of the first one hundred members paying in his subscription for the year 1900:

Package No. 1, containing Kentia palm, chrysanthemum and four hyacinths, and package No. 2, containing Bismark apple tree, Prunus triloba, and four hyacinths.

GUELPH.—Years gone by there was a flourishing Horticultural Society in the city, but latterly the interest flagged and the society dropped out of existence.

On Tuesday evening, Nov. 14th, a meeting was called in the City Hall to re-organize a society. Although there was not a large attendance, those present were most sanguine of being able to form a strong society, and the meeting on the whole was a success.

Mr. James Goldie was appointed chairman. He explained very fully the objects and aims of the society, and the benefits that would be derived by such a society, not only to the members, but the public at large.

Messrs. Lyon, R. Cunningham and Prof. Hutt were also strongly in favor of the formation of the society.

After a number of questions had been asked and answered, the ladies—of whom there were quite a few present—formed themselves into a committee to canvass the city for members. They seemed most enthusiatic, and are confident of securing a large membership.

OUR JOURNAL FOR 1900 will be still farther improved. The columns will be wide, the page larger and the exterior will be decorated with an entirely new cover and cover design. We are promised special articles from Prof. W. T. Macoun, of Ottawa; Mr. S. H. Mitchel, St. Marys; A. E. Mickle, Toronto; A. E. Brooke, Alberton, and many others.

OUR HORTICULTURAL SOCIETIES will be interested in knowing that in place of the Tea rose offered them in a special circular, we can give them Francois Levet, one of the hardiest and best of Hybrid Remontants. It is cherry-rose in color, medium size, somewhat of the style of Paul Verdier.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

DR. SAUNDERS has recently returned from an extended tour to the Pacific Coast, visiting the experimental farms on the way. He reports that extended preparations are being made for a complete display of the agricultural horticultural products of the Great West at the Paris Exposition.

PRINCE EDWARD ISLAND APPLES.—Father Burke, of Alberton, P. E. I. forwards us three fine samples of apples grown in that Province, and if we may judge by them, the little island may well be encouraged to plant apple orchards. The largest one is about three inches in diameter, and resembles Stark in form, but is more deeply colored with dark red. The second is about 2¾ in widest diameter and resembles Cranberry Pippin in markings, and Canada Red in form; the the third, is oblong, about 3 inches by 2½, green with a very dark red cheek, something like a Gillyflower, but more obtuse, brighter red, and heavier. Possibly these are all local apples, and if so, may be more suited to the conditions than varieties which have originated elsewhere.

MANITOBA GROWN APPLE.—Prof. W. E. James of the Manitoba College, Winnipeg, sends us a sample apple grown in Manitoba by the Archbishop of Rupert's Land, in his garden at Bishop's Court, Winnipeg. The apple resembles the Yellow Transparent, but comes to hand when this variety is entirely out of date in Ontario. No doubt in Manitoba it would be later in season than here. Mr. James adds that he believes that one day Manitoba will

be able to supply in a large measure her own needs in the way of apples.

PAN-AMERICAN.—The Buffalo Courier is quite jubilant over the assurance received at the head quarters of the exhibition, that Canada would make a splendid exhibit, and takes it as a further evidence of the friendly feeling existing between England and the United States.

EXTRAORDINARY RETURNS.—We are often asked how much per acre may be expected as the net returns from a peach orchard, and such questions are the most perplexing, for everything "depends upon the man." Right varieties, right location, right methods of growing, packing and marketing make a man rich, while neglect of these make a man poor.

It has been stated that Mr. Roland Morrill, of Benton Harbor, Michigan, the President of the Michigan Society, gathered 12000 baskets of peaches from 50 acres of peach orchard, which sold at prices ranging from $2.00 to $7.00 per bushel! His returns from fifty acres were $35,000!!

The explanation is due to cultivation, potash, manuring, sensible pruning, and unmerciful thinning, as a result of which many of his peaches measured three and a half inches in diameter.

COMMERCIAL FERTILIZERS, according to Prof. Vanslyke are much more satisfactory when used in conjunction with humus, than when used alone.

THE CANADIAN FIELD PEA is considered in California the most satisfactory to sow for green manure. They allow from 85 to 100 pounds to the acre.

CORRECTIONS. — On page 428 it should read, "homes referred to by Charles Downing in his Landscape Gardening"; his own home was on the Hudson. Also Prof. Sargent was editor "Garden and Forest" not The Garden. On page 447 Fig. 1688 should read "Scale and ovule," not frond.

THE KOONCE PEAR is favorably reported upon by Mr. E. P. Powell, of New York State, as being large and handsome, of bright yellow color, with crimson cheek, and flavor equalling Sheldon.

VERMONT BEAUTY pear originated on Grand Island, Lake Chaplain, about 1887. It is a pretty red cheeked pear, of fine quality, ripening in October.

PRINCESS LOUISE.—Samples of this apple have been received by the R. N.Y. and described as highly colored, bright red and whitish ground, flesh white, fine texture, spicy, pleasant, and full-flavored, higher quality than Shiawassee Beauty.

THE CANNED FRUIT JELLIES in common use are said to be mostly made of apples boiled down in diluted suphuric acid, and flavored to resemble the various fruits!

OBITUARY.—Peter M. Gideon, originator of the Wealthy apple, died at Excelsior, Minn., October 27th, aged 79. The apple was named after his wife, Wealthy Hall, whom he married in 1849. He was the first superintendent of the State Experimental Fruit Farm.

THE MACINTOSH RED APPLE was originated by Allen McIntosh, of Inkermann, a Scotchman who served in Captain Cripler's company in 1837, and was present at the Battle of Windmill Point. He was also the originator of the Golden Sweet.

JOHNSON'S EARLY is the name of a

new strawberry from Somerset County, Maryland and was originated by Mr. O. Johnson, from seedling of Crescent and Hoffman. It is said to be as productive as Crescent and as early as Michell.

ENCOURAGING TO CANADIAN SHIPPERS. The Fruit Grower in a recent issue says: We have received some samples of Maiden's Blush apples and Williams (Bartlett) pears which formed part of the late shipment of Canadian fruit sold in Covent Garden.

From the specimen to hand it is clear that there is a big opening for these Canadian fruits, and that they will with careful shipment, packing and distribution secure ready sales at good prices. We are much impressed with the quality, that is the size, color, and flavor of the fruits, and we shall take an early opportunity of dealing with them and this branch of the trade in an early issue. The Canadian growers and shippers may face the future development of their export fruit trade with the greatest confidence.

. . . . . .

In pears, the California samples, Beurre Hardy, in cases of 60 to a case, sold from 7s. 6d. to 8s. 6d. each; these fruits were fine, as may be gauged when we state that many of them have been retailed at 3s. and 4s. per dozen fruits; Clairgeaus sold from 6s. to 7s. 6d. per four dozen count, and Duchess from 5s. to 6s.; these contained the same quantity as the Clairgeaus.

In plums, California made from 7s. to 8s. per twenty pound net. Some of these have been retailed at 2s. a dozen fruits. Golden Drops went out from 6s. to 7s.

BEURRE HARDY.—Speaking of this pear in England, the same authority says:—This is a fine variety of pear and one which may be raised with the utmost confidence. In the fruit shops at the present time it is well to the fore, though the major portion of the fruits thus exhibited have been sent us from California. It is a large pear, oblong, obovate in shape, it has a fine appearance, and is well suited for market work; it is at its best in October. The quality of this pear is beyond dispute, for it is unique in its way, and the flesh possesses a very marked perfume. Why it has not been raised in this country in sufficient quantities to satisfy the market need is a mystery. Possibly its claims have not been brought home clearly to the majority of growers. Whatever the cause may be there can be no doubt as to the quality and suitability of this fine pear for commercial purposes. We should not hesitate ourselves even to make its production a special feature, for when well grown it is a pear from which money can be made. The skin is yellowish green, but it carries a lot of russet markings on it, and it is this which makes it a conspicuous fruit whenever it is on show. It is an admirable all-round pear, particularly suitable for sale amongst the best class of buyers.

COES' GOLDEN DROP is also commended as one of the best plums for the London market; and it is stated that this plum has been sold in the English fruit shops at 1s. 1d. or about 36 cents a dozen. These were from California, large, well colored, and in excellent condition.

FRUIT GROWING IN NATAL is becoming an important industry. It is said that the road from Durban to Pietermaritzburg is lined with numerous fruit plantations. The district of Malvern, nine miles from Durban has soil and

climate well fitted for growing sub-tropical fruits. Bananas are a staple production; the Natal pine apple is a superior variety; lemons and oranges are both commonly grown, the latter coming into bearing in the fifth year, and continuing until their thirteenth.

we have been noting Black Victoria at Maplehurst, and this year especially it is showing up well in productiveness. The same good quality is also shown by plants growing at Mr. Peart's, Freeman, who is experimenting with all varieties of currants. Branches sent us for putting

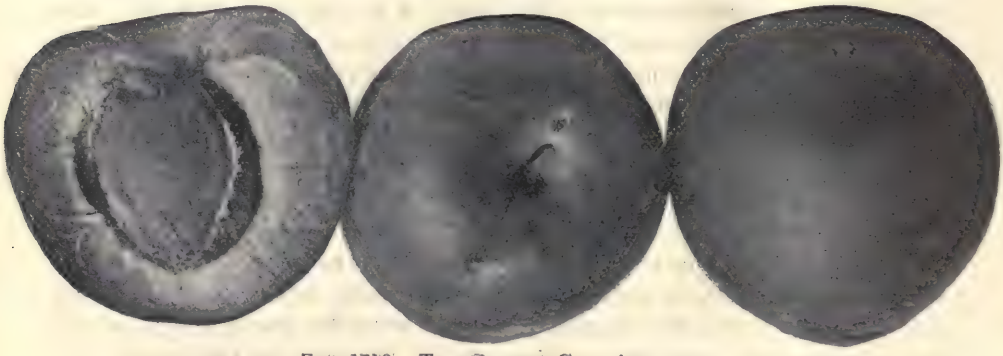

FIG. 1716.—THE GARDEN CITY APRICOT.

THE GARDEN CITY APRICOT is a new variety, which has recently originated at St. Catharines, and is very promising, both by reason of its beauty of appearance, excellent quality, and fine size. The cut shows the natural size of some of those apricots, which were sent in to this office last summer. They seem to be also hardy and productive.

BLACK VICTORIA. — Black currants have been planted quite largely for profit in the Niagara district, chiefly of the Naples and Lee's Prolific variety, because their rarity in our markets made them a good price. But alas! they are usually so unproductive in this section that there was nothing in them for the grower, and they have been rooted out. The black currant is one of the fruits that seems to succeed well in the north, if we may judge by what we saw in 1898; for on St. Joseph's Island we found garden rows of Lee's Prolific, that were loaded down with magnificent fruit. For two years now

up in bottles were heavily loaded, and the bushes seem to be very vigorous. The bunches appeared three and four at each node, and measured from 1¼ to 1½ inches in length, and the berries ½ by ⅝ inch in diameter. The season is from July 15th to 30th.

THE BOSTON FERN, which is on our list for distribution in the spring of 1900 is a valuable house plant. Its long gracefully drooping fronds hanging down on all sides from a jardiniere stand are a real source of satisfaction, and although we can send only a small plant by mail, it will soon grow to a thing of beauty. The Florist says of it:—"The Boston fern owes much of its popularity to the ease with which it adapts itself to house culture. Frequently we see in sitting-room windows specimens equal to the finest conservatory-grown plants and of better color than the average greenhouse product. This would indicate that this plant prefers the deficient light of the dwelling

house to the glare of the greenhouse, and that shade is an essential for its best development."

THE LOUISE is one of the finest export pears, providing a first-class sample is produced. On well cultivated sandy loam, well enriched, well pruned, the tree yields a fine crop of large fruit with a beautifully colored cheek; and such stock brought the highest price in the British market, of any pear we sent over in 1898.

A writer in the "Fruit Grower" writes as follows of it: We put Louise Bonne first, and in spite of the claims of several others, we think that we are justified in doing so. Why? do you ask; well, simply because it is a most luscious variety, puts on a grand color, comes to a good salable size, and is exquisite when fully matured. We really wonder if a well-ripened English Louise Bonne has any thing that can be comparable to it as pears go. It is a grand fruit for marketing in boxes, and on that account cannot be too freely grown. We have seen these pears marketed thus going out to the order of the best buyers in the retail trade without having being opened for general view at all, and this proves very clearly that it is an excellent one to grow for profit.

As often grown, however, in Ontario, on soil that is poorly cultivated, and poorly fertilized, the pear is small, and scabby, and unfit for market. It succeeds far better as a dwarf than as a standard.

GOOD PEARS. — The Fruit Grower gives the following list of desirable pears, viz.: Doyenne de Comice, Beurre Hardy, Pitmaston Duchess and William's Bon Chretien (Bartlett).

WORMY AND SPOTTED fruit filling the English market. It is surprising that our apple shippers will follow the suicidal policy of shipping to the foreign market such rubbish as they have been doing this season. It would appear that the warnings given in this Journal, and in the reports of our meetings have been wholly without effect in hindering this evil of fraudulent packing. Shippers go about the country buying up orchards, and do not hesitate to use the good fruit for facing up the ends of the barrels, and the rubbish to fill in the middle. James Adams, Son & Co., Liverpool, write, November 4th:

The position of things this week has been disappointing in the extreme, the excessive supply of inferior and faulty conditioned fruit having so completely demoralized the market that, to effect sales, wretchedly low prices have had to be accepted. Indeed, hundreds of barrels have been sold at prices that will little more than, if in fact, fully cover freight and charges, and it goes without saying, therefore, that shippers all round will lose heavily. Why the stock should have gone off so suddenly we cannot possibly understand, but seeing that arrivals from all sources have been similarly affected, we are inclined to the belief that the weather must have been too warm when packing operations were in progress, a theory which is amply justified by the very heavy shrinkage seen in so many of the barrels. In spite of all this, we do not wish shippers to be altogether discouraged, as the trade is still able to appreciate fruit of good quality when it is available. Even this week some few lots brought fair prices, and the buyers' complaint is that they cannot get sufficient to meet their requirements, so that as soon as reliable stock comes along there is no doubt that things will brighten up again. Fruit that is wormy and spotted, like

that we have been receiving lately, gives little or no satisfaction to anybody, and seeing that the charges are the same as on better stock, we are surprised that so much common stuff has been sent forward.

THE COMET CURRANT is considered in the Fruit Grower, London, England, as very productive, as many as twenty-six berries having been counted on a single bunch. The berry is of superior size, and it is claimed that such a sample should bring about a new era in currant culture.

RIBSTON PIPPIN.—Four samples of this fruit from a very old tree, a sucker from the original tree, were recently sent the editor of the Gardeners' Chronicle, England, by J. McLellan, of Ribston Hall, Gardens, Sussex. The original tree was raised here from a pip sown in 1709, and it was blown down in 1734. The sucker has never been moved.

THE PRINCESS LOUISE. Mr. Green of Rochester writes as follows, concerning this variety, which originated on our fruit farm at Maplehurst years ago, a chance seedling of the Fameuse:—We are greatly pleased with the Princess Louise apple as fruited here this season. It is a reddish apple, somewhat flattened in shape, good size, very handsome, and of fine quality, resembling Shiawasse Beauty but darker. It is a fine apple if it is correctly named.

THE PLANT DISTRIBUTION. Our request for the views of members regarding the best use to make of the $600 or $700 now spent in distributing plants, has brought in a large amount of correspondence, many preferring that it be spent in increasing the size and usefulness of our journal, for which it would work great changes; and others, perhaps the majority, preferring that we continue the present system of giving each member some new or valuable sort of fruit or flower plant. We shall not therefore make any change in the custom without further consideration.

THE JOURNAL FOR 1900 will appear in improved form, with wider columns and larger page. We hope to give our readers much better value for their money than in any previous year. We solicit letters, notes, comments, articles, and illustrations (photographic or other) for January number, and bespeak the hearty co-operation of all, whether professional or amateur gardeners.

ORCHARDS IN ENGLAND.—Of the 224,000 acres of orchard in Great Britain returned to the Board of Agriculture as arable, or grass land used for fruit trees, all but 3 per cent are situated in England. These acres are chiefly grass land planted with apples and pears and a large proportion is not producing half as much fruit as it might under proper cultivation and care.

"This state of things," says the journal of the board, "has been caused by various forms of neglect and mismanagement, the primary being the selection of unsuitable varieties of fruit trees and indifference with regard to origin, size, vigorous habit and healthy appearance of the young fruit trees planted."

Question Drawer.

Huggard's Seedling Pear.

1119. SIR,—I send you a seedling pear for your opinion. It is a cross between Clairgeau and Anjou.

R. L. HUGGARD, *Whitby.*

This pear is worth testing. In a warm room it has ripened for eating this 1st November, but in the cool it would no doubt keep till Christmas. It is large in size, obtuse, pyriform, skin yellow, with bright red cheek, stem stout with peculiar raised fleshy insertion, calyx half closed in a moderately deep basin, flesh creamy white, tender, juicy, with some granules like the flesh of the Duchess; flavor sweet and very agreeable.

Weakened by Frost.

1120. SIR,—I planted a number of pear trees in the spring of 1898, they all grew well that season, but this spring the trunks of most of them were dead on one side, the branches were budding some but have died since. Would like to know if such young trees would have the blight, if the cold winter has done it, or if the disease has come from the nursery, some trees are growing from the roots. D. N. A.

No doubt the severe cold weather of last February weakened the life of many of our fruit trees, some of which succumbed at once and others have been gradually dying. Sometimes the sun coming out suddenly upon frozen bark after a severe cold spell, causes sun scald, or portions of bark to die and in time peel off, thus seriously injuring the tree.

Choice of Apple Trees.

1121. SIR.—I am thinking of planting out three or four hundred apple trees (winter fruit) assorted, as follows: Baldwins, Ben Davis, Mann, Kings, and Cranberry Pippins. Would you kindly let me know what you think of the assortment?

A. McK. CAMERON, *Meaford.*

The selection of apple trees made by our correspondent is a very good one for a list of winter varieties for export, with one exception, viz., the Mann apple. This variety drops badly from the tree, and its color is not favorable to its ready sale. It is productive and fairly even in size but can hardly be classed among the best commercial varieties. We would substitute Ontario for Mann in the list proposed by our subscriber.

Turnips as Green Manure.

1122. SIR,—If not too much against the rules of your journal, I wish you would reply to the query as below at your earliest convenience. I have a crop of turnips in my plum orchard—trees planted five years next spring. Would it be good for tree or fruit or both to plow under turnips now?

EPHRIAM COOKE, *Norwich, Ont.*

Reply by H. L. Hutt, O. A. C., Guelph.

We would not advise plowing under a good crop of turnips. It would pay better to sell the turnips and buy wood ashes or manure, or if possible feed the turnips to stock and apply the manure to the orchard.

Second Crop of Flowers after Bulbs.

1123. SIR,—In your October issue in an article taken from the Farmer's Advocate, I observe it is recommended that bulbs should remain unmoved in the ground for three or four years, or longer. Will you kindly tell a subscriber if any use can be made of the ground after the plants have ceased to bloom; and if so, what is the best thing, or things to use in the vacant or bare earth?

JAS. CAUFIELD, *Woodstock.*

Seeds of annuals may be sown to succeed the early spring flowering bulbs.

Regulations of Fruit Packing.

SIR,—The answer to question No. 1110 is really satisfactory as far it goes,

but to buyers at least there are two other questions referring to fruit packages that require attention. One you have hammered at until it is almost headless, viz., the quality of fruit put into the packages. Is it possible to establish a standard? If so why is it not done? Why is it not made law that in packing fruit of all kinds, the name of the packer and the of the fruit and the quantity (net) shall be put upon every package. Of course a brand is a brand by law, but take grapes, pears, peaches, plums, raspberries, strawberries, etc., and there is more fraud than righteousness. I go to market and buy, say, a ten pound basket, if I do not get a nominal *seven* pound one, I do get only nine pounds. Then there are 15, 17, and 20 lb baskets and a buyer must be an expert to detect the fraud. The only cure for these miscellaneous packages is the one above suggested, viz.: Make it an act (of the Ontario Legislature I think) that every package of fruit offered for sale shall be labeled

Put up by .....

Containing 00 lbs net.

..... Peaches

or whatever there is in it.

Then perhaps fruit will be correctly and honestly put up. These are suggestions for your winter meeting. See page 420.

G. H. FAWCETT.

Ottawa.

✱ Open Letters. ✱

The Colored Plates.

SIR,—I notice of late some few giving their opiuion about the plant distribution, but we hear nothing about those beautiful colored plates we used to have in each number. They would make a fine show in the bound volume, even one on the first page like 1897. I have mine set in frames, ten in each frame and think they are a good decoration for a fruit growers home. They are also some help in getting subscribers in this part, so I would rather see the plants discontinued than the colored fruit plates. Now why not make the December number a kind of a Christmas number, as it is the last volume for this century, and I believe it would be much better for agents at least, than the spring plant distribution.

D. N. ANDERSON.

Wyoming, Ont.

THE APPLE CROP of the United States in 1898 amounted 28,570,000 barrels, and this was counted an unusually short yield. This year, also a short yield, the amount is estimated at 35,100,000 barrels. The following is a showing of the

APPLE CROP OF THE UNITED STATES.

Year	Barrels
1894	57,630,000
1895	60,540,000
1896	67,570,000
1897	41,537,000
1898	28,570,000
1899	35,100,000

The exports of American and Canadian apples, for the seasons given, are shown in the second table with this article. Liverpool was the largest receiver, that port being credited with 689,036 barrels; London coming next with 271,347 barrels; Glasgow 180,336 barrels and Hamburg 22,861 barrels following, all other receiving ports being credited with 57,512 barrels.

APPLE EXPORTS

Year	Barrels
1891-92	1,450,336
1892-93	1,203,538
1893-94	174,841
1894-95	1,438,155
1895-96	756,415
1896-97	2,919,846
1897-98	913,996
1898-99	1,221,087

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STORAGE